

COMMERCIAL REFRIGERATION & AIR CONDITIONING

APRIL 1956

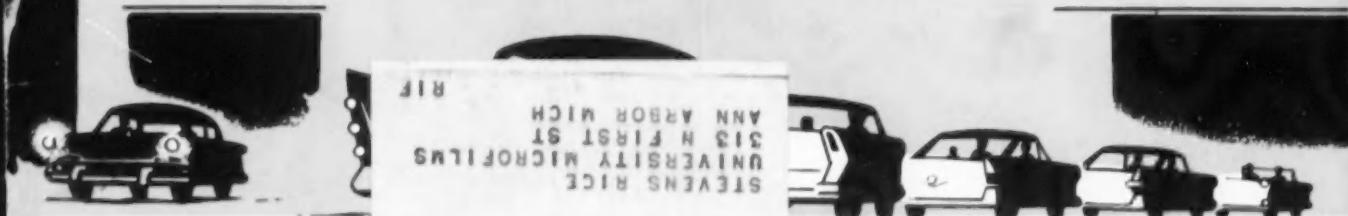


Food Service Equipment finds a growing market in DRIVE-IN THEATERS

... see pages 52-53

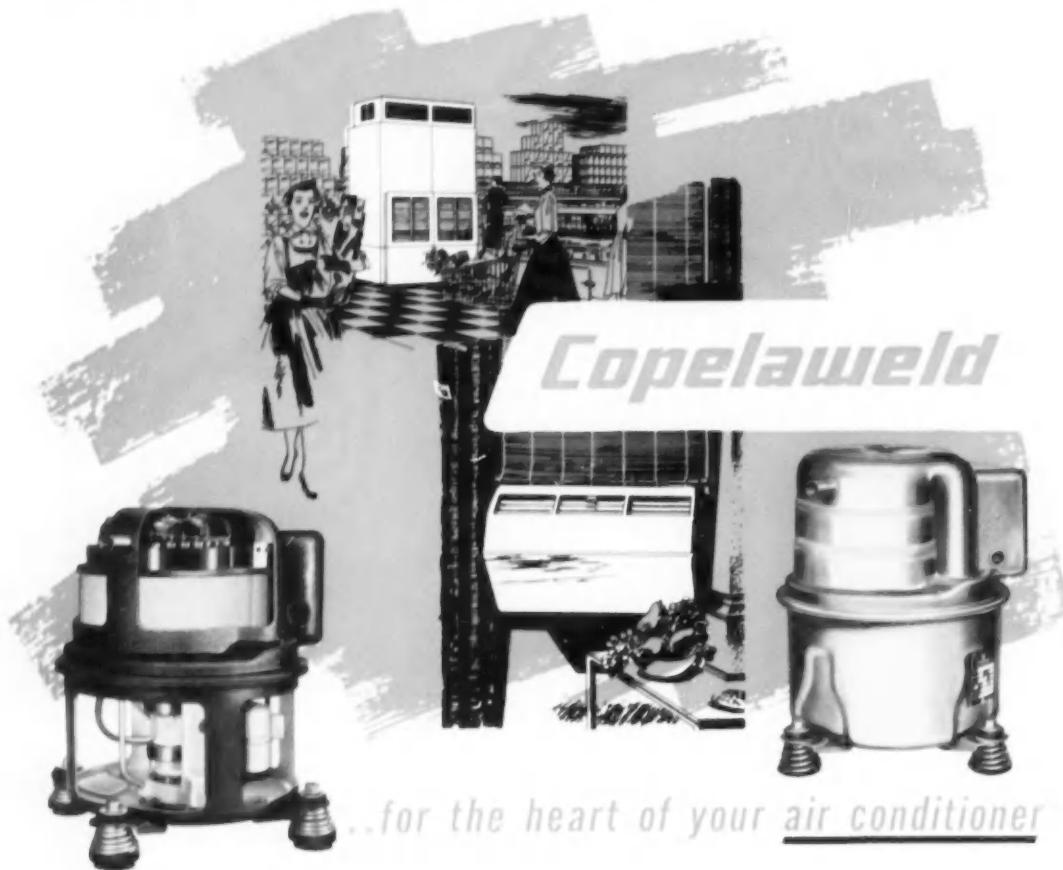
OTHER FOOD SERVICE FEATURES

You Can Judge a Book by Its Cover	54
Equipment that's "Fit" To Be Sold	56
He Says It with Photos	59
Save Space — Sell Ice Makers	62
Put It on the Roof	103
Rebuild Hot Weather Food Business	104



MERCHANDISING, SELLING, INSTALLATION AND MAINTENANCE OF
AIR CONDITIONING AND COMMERCIAL REFRIGERATION EQUIPMENT

Get the jump on competition with...



It's a little like having aces wired, when a Copelaweld motor-compressor is a part of your packaged air conditioner. You've the comfortable feeling of being a step ahead of your competition.

The quiet purr of a Copelaweld delivers up to 10% more capacity than similar types . . . and at lower power consumption. The heavy-duty, high power factor motor combines valuable efficiency and operating economy.

Every Copelaweld feature is a selling point for your air conditioner. These are statements you will make with pride . . . sound, one-piece casting positively aligns motor and bearings . . . counter balanced crankshaft for smoothness . . . positive lubrication from an oil pump with no moving parts . . . solid bronze rods and

bearings for long life . . . Swedish steel valve reeds for precision compression control . . . compact to minimize space required.

Those are facts you'll use to build sales for your air conditioner when you use Copelaweld motor-compressors.

FREON-12 and FREON-22 MODELS AVAILABLE. $\frac{1}{2}$, $\frac{3}{4}$ and 1 H.P. models using Freon-12; $\frac{1}{2}$, $\frac{3}{4}$, 1 and $1\frac{1}{2}$ H.P. models using Freon-22. For larger capacities "Dual Copelaweld" systems offer such advantages as less cycling, lower starting current; flexibility . . . often at cost comparable to a single, larger motor-compressor.

SEND FOR PERFORMANCE DATA AND COSTS

SINCE 1918

Copeland
REFRIGERATION CORPORATION, Sidney, Ohio

Circle No. 1 on Reader Service Card

AT LAST! what the industry has been waiting for!

ALCO'S NEW

Venturi-Flo distributor . . .

The new ALCO venturi distributor assures
equal refrigerant distribution to all passes of a
multi-circuit evaporator with a low-pressure drop.

works in any position

vertical, upside-down or horizontal.

wide application range

from 25% of capacity to 150% of rated capacity . . . with
only a small pressure drop at maximum conditions.

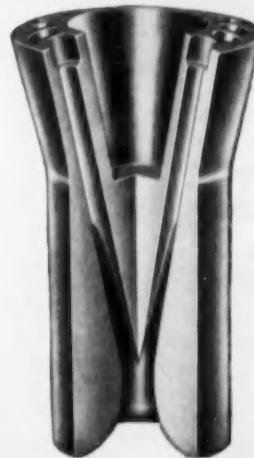
low-pressure drop

allows closer and more economical thermo-valve sizing.

one-piece construction

no nozzles for capacity regulation . . . nothing to take apart,
nothing to come apart.

engineered—for service for life



write for section 188-55

ALCO VALVE CO.

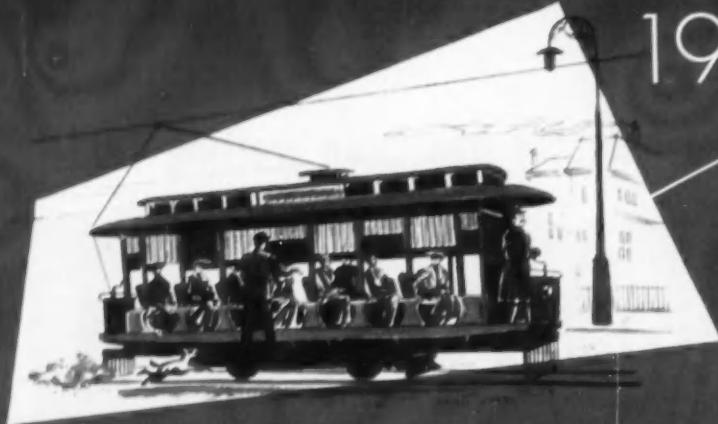
843 KINGSLAND AVE. • ST. LOUIS 5, MO.

6512

Designers and Manufacturers
of Thermostatic Expansion
Valves, Evaporator Pressure
Regulators, Solenoid Valves
Float Valves, Float Switches

Circle No. 3 on Reader Service Card

1906



The open trolley car was a popular engineering contribution to summer-time comfort and pleasure. 1906 marked the introduction of the first Brunner-engineered product.

~~TODAY~~

Brunner "engineering for comfort" opens the door to more air conditioning sales in the future

...with the newly-designed BAC "packaged" models, and a complete line of open-type condensing units.

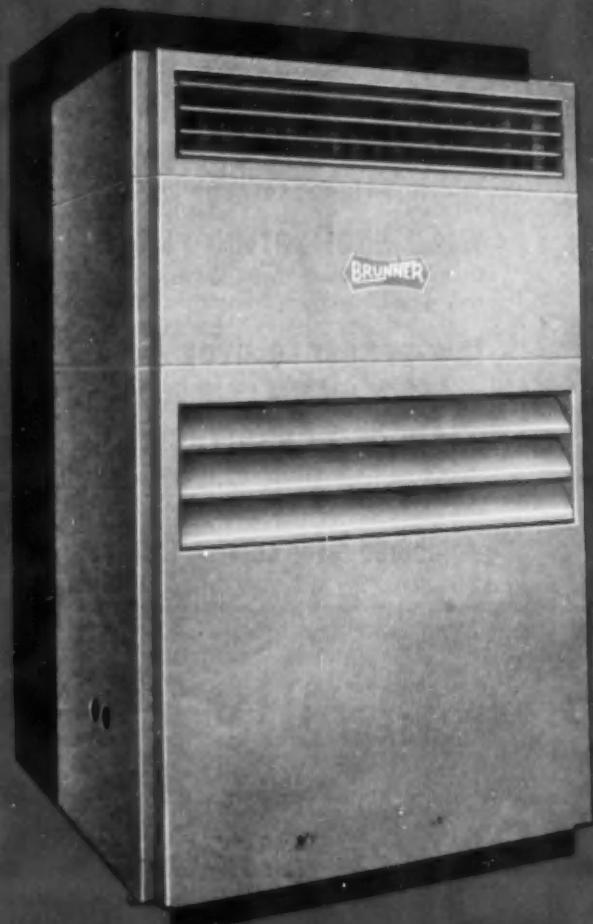
BRUNNER MANUFACTURING COMPANY, UTICA, N. Y.
THE BRUNNER CO., GAINESVILLE, GA.

IN CANADA: BRUNNER CORP. (CANADA) LTD., TORONTO, ONTARIO



New BAC "packaged" models are available in 3, 5, 7½ and 10 H.P. sizes. Smaller and more compact, these new units are attractively finished in Hammer-tone Green.

Open-type Condensing Units available in a wide range of sizes . . . ¼ through 100 H.P.



READER'S GUIDE

COMMERCIAL REFRIGERATION & AIR CONDITIONING

APRIL 1956 • VOLUME 13 • No. 4

FEATURE ARTICLES

- 52 **FOOD SERVICE FOR THE DRIVE-IN THEATER** . . . is becoming big business for the commercial refrigeration dealer and contractor. Here's a tip-off on the potential market, plus a description of one of the biggest installations of this type in the country.
- 54 **YOU CAN JUDGE A BOOK BY ITS COVER** . . . This dealer proves it by packing a wealth of detailed job information inside his specially imprinted proposal folders.
- 55 **CURE FOR PAINT PEELING PROBLEM** . . . Acrylic film may help eliminate this trouble spot in food storage areas.
- 56 **EQUIPMENT THAT'S "FIT" TO BE SOLD** . . . is the mainstay of this Baltimore contractor's business. He finds that specialized food service and storage requirements often necessitate custom-tailored cooling systems.
- 59 **HE SAYS IT WITH PHOTOS** . . . This Philadelphia distributor finds that pictures create a more lasting impression than flowers.
- 60 **TIPS ON USING STAINLESS STEEL TUBING** . . . for beverage service applications are offered in these practical pointers for installation men.
- 61 **ELECTRONIC INSTRUMENT AIDS CONTRACTOR** . . . in locating and tracing metal objects, even when imbedded in concrete.
- 62 **SAVE SPACE — SELL ICE MAKERS** . . . That's the formula effectively employed by this Denver dealer in concentrating on restaurant and tavern owners.
- 63 **ON-THE-SPOT COLLECTIONS** . . . solve service credit problems for this Texas firm which encourages its servicemen to "bring home the bacon".

Air Conditioning Section

- 103 **PUT IT ON THE ROOF** . . . if there's no space inside for the air conditioning equipment. That's the way this contractor solves the cooling problems of customers with crowded quarters.
- 104 **REBUILD HOT WEATHER FOOD BUSINESS** . . . with air conditioning. Management of this airport restaurant found that cooling turned the trick when summer sales slumped.
- 106 **COMMUNITIES CAN BE CUSTOMERS, TOO** . . . for the contractor who's selling industrial air conditioning installations. Here's the story of one such sale.
- 107 **"PACKAGES" SOLVE VARIED PROBLEMS** . . . when it comes to air conditioning the modern shopping center, because they can be adapted to almost any situation.
- 108 **ARE YOU AFRAID OF ELECTRONIC CONTROLS?** . . . You needn't be, if you'll read this down-to-earth discussion of how they operate and what they will do.

DEPARTMENTS

About People	20	Contractor News	72
BTU's	51	Useful Literature	80, 112
Commercial Refrigerator Sales News	64	New Products	84, 114
Applications Manual	68	Here's How	129

Index to Advertisers 134

Copyright 1956 by The Industrial Publishing Group, a Division of Telenews Productions, Inc., Cleveland, Ohio.

Accepted as Controlled Circulation Publication at St. Joseph, Michigan. Please return 3579 forms to 800 Carlton Bldg., 812 Huron Road, Cleveland 15, Ohio.



Circle No. 4 on Reader Service Card

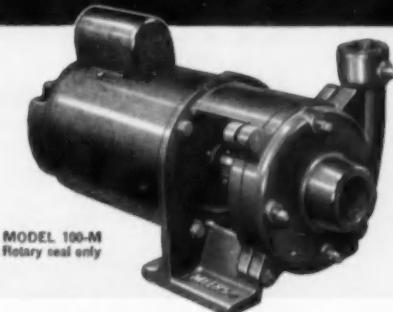


MODEL 125-M
Shown with stuffing box
(available with rotary seal)



MODEL 125-B
Shown with stuffing box
(available with rotary seal)

NOW...a complete line
of centrifugal pumps
for air conditioning from...
MYERS



MODEL 100-M
Rotary seal only



MODEL 100-B
Rotary seal only

FULL RANGE OF SIZES

$\frac{1}{6}$, $\frac{1}{4}$, $\frac{3}{8}$, 1, 2, and 3 horsepower, motor-mounted or belt-driven models.

TWO CASING SIZES

$1'' \times 1\frac{1}{4}''$ or $1\frac{1}{4} \times 1\frac{1}{2}''$.

ALL-BRONZE IMPELLER

Accurately balanced for smooth operation.

REMOVABLE BRONZE WEARING RINGS

Easily replaced for longer pump life.

ROTARY SEAL

Eliminates leakage (stuffing box may be specified on "125" models.)

CORROSION-RESISTANT SHAFT

Stainless steel for trouble-free service.

WIDE RANGE OF CAPACITIES AND HEADS

Capacities to 90 GPM. Heads up to 135 feet.

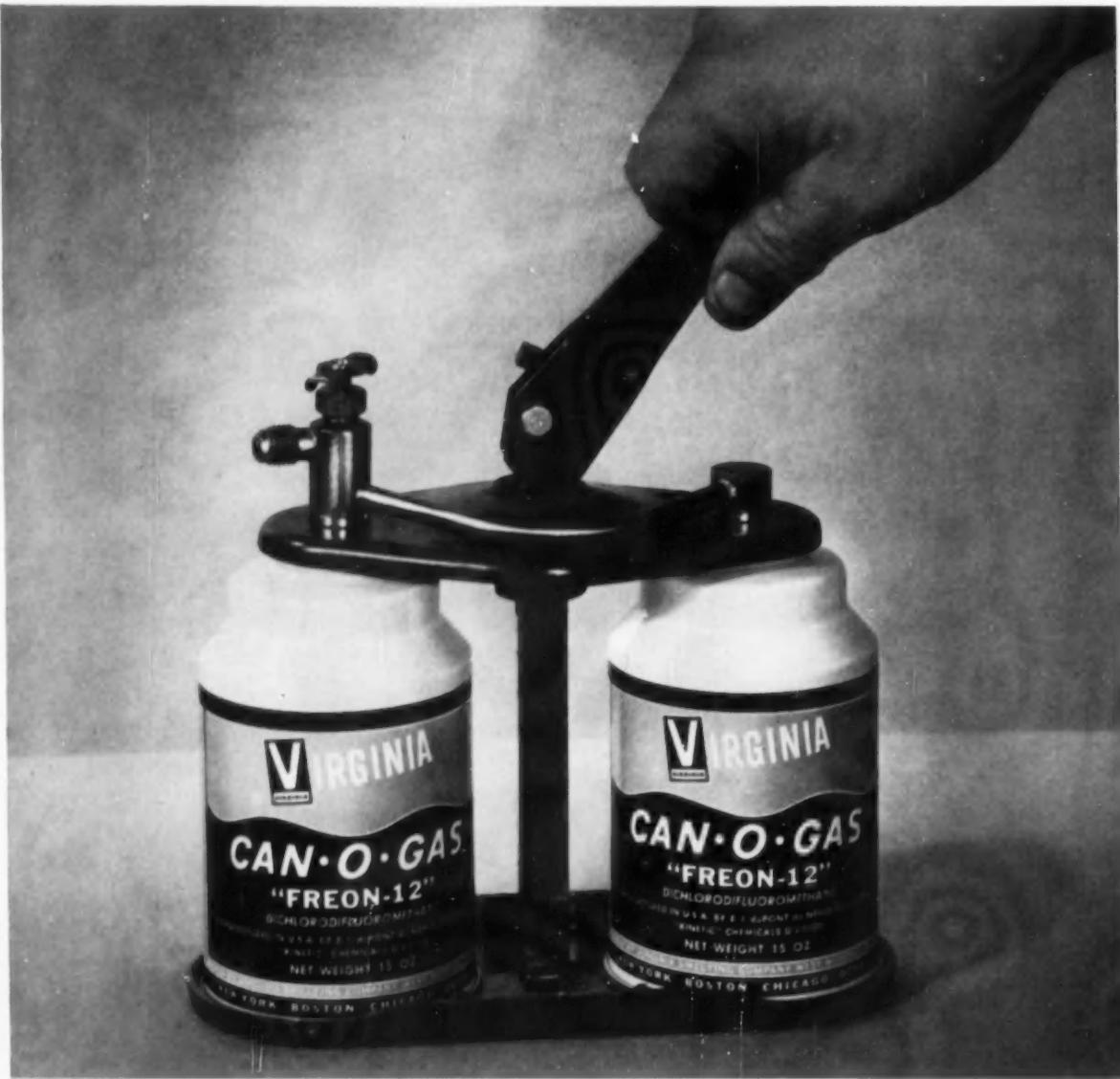
Write today for Bulletin 210 on  **Centri-Thrift Pumps.**

Myers

PUMPS

WATER SYSTEMS AND
WATER SOFTENERS

The F. E. Myers & Bro. Co., Ashland, Ohio



For the first time...An accurate field method for adding critical charges of refrigerants

"Virginia's" new Can-O-Gas Multi-Opener provides, for the first time, an accurate method of adding critical charges of refrigerants in the field. With the Multi-Opener No. 2, by means of the proper combination of precision filled weights of "Freon-12," 15 different fractional charges—from 16 oz. to 30 oz. in $\frac{1}{2}$ oz. increments—can be delivered with an accuracy of plus-or-minus 4 grams.

By use of the 3-can Multi-Opener No. 3, 31 different fractional charges are possible, from 24 oz. to 45 oz.,

also in $\frac{1}{2}$ oz. increments. These novel, new Multi-Opener units are easy to operate, and are virtually indestructible. And the throw-away feature of Can-O-Gas containers completes the picture of the convenience of Can-O-Gas Multi-Opener charging. Can-O-Gas Multi-Openers deliver the refrigerant in the gas phase or—when inverted—in the liquid phase.

Order a supply of Can-O-Gas Multi-Openers No. 2 and No. 3 today for accurate field charging.

Circle No. 49 on Reader Service Card

Refrigeration Division
VIRGINIA SMELTING COMPANY

237 Jefferson St.
West Norfolk, Virginia



ENOTEC • KINETIC CHEMICAL'S "FREON" REFRIGERANTS • METHYL
CAN-O-GAS • PERMAGUM • WATER TREATMENT CHEMICALS
PRESSITE TAPE • KNIKWRAP • SUMCO REFRIGERATION OILS
Available in Canada and many other countries

10 Biggest Exclusives

in the COOLING-HEATING industry

Help

Coleman

dealers sell!

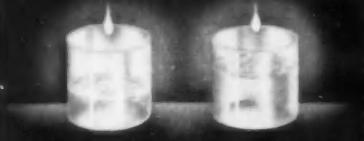
Compare with
your present line!

① The best known brand is the easiest to sell — and more homes heat with Coleman than any other make! In addition, you have the world's finest cooling. Be a Coleman dealer — for extra profits!

nationally advertised in
LIFE • SATURDAY EVENING POST
HOUSEHOLD • SUNSET
SMALL HOMES GUIDE

ORDINARY
COOLING

BLEND-AIR
COOLING



- ④ Best humidity control of any cooling, with Blend-Air distribution system!
⑤ Superior temperature control — with no drafts! Proved in NAHB Village, Austin, Tex.



- ② Exclusive Blend-Air cooling. Complete line of vertical and plenum coolers, to install with Blend-Air or other forced air furnaces. Add cooling cycle anytime on FHA Title I.



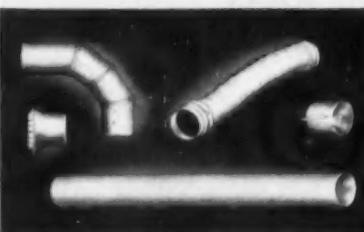
- ③ Lowest cost cooling to operate with exclusive Air-Mist evaporative condenser—25% LESS power than average air-cooled system, 62% LESS water than with a cooling tower!



- ⑥ Exclusive balancing system — tailors cooling to exact needs of any home. Choice of direct expansion or chilled liquid Air-Mist condensers — or new air-cooled units.



- ⑦ Exclusive Coleman blenders keep temperatures even floor-to-ceiling and wall-to-wall!
⑧ Backed by exclusive \$1000 Bond — the strongest guarantee for any heating system!



- ⑨ Only completely packaged system on the market. Blenders, ducts, fittings — all precision-made at factory. Reduces layout time... eliminates costly shop work.



- ⑩ Cuts installation time 1/2 to 2/3! 3 1/2-inch ducts fit between studs, no costly alterations needed for modernization jobs. Saves labor and inventory — for extra profits!



Coleman VIT-ROCK GAS WATER HEATERS

Exclusive rock lining can't rust!
Backed by 10-year warranty and
exclusive \$500 bond... strongest
guarantee for any water heater.

Coleman since 1900 — makers of lamps, lanterns, camp stoves, home heating and air conditioning

**Coleman Home Comfort
Payment Plan** — lets you
offer easiest terms in town.
Nothing down — 3 years to pay!

MAIL COUPON TODAY FOR COMPLETE INFORMATION

**The Coleman Company, Inc.,
Dept. CRA-158
Wichita 1, Kansas**

Gentlemen: Please send me complete information on Coleman cooling and heating, and your Home Comfort Payment Plan.

Name _____

Firm Name _____

Address _____

City _____

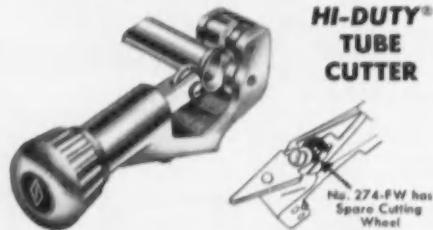
Zone _____ State _____

Insist on Genuine IMPERIAL TUBING TOOLS

The standard of the trade for over 30 years

IMPERIAL—the pioneer and leader in tubing tools—now offers many outstanding, labor-saving developments typified by the tools illustrated here.

It may be that your present tools are wasting many valuable man hours. Why not replace them now with the finest tubing tools available—your Imperial Jobber has them.



The outstanding favorite with refrigeration men everywhere. Has free-wheeling ball bearing action. Roller type with flare cut-off groove. Retractable reamer. No. 274-F for $\frac{1}{8}$ " to 1" O.D. tubing. Other models for sizes to $\frac{3}{4}$ " O.D.

No. 274-FW 2-in-1 Tube Cutter, same as No. 274-F, but has Spare Cutting Wheel always on hand for emergencies—carried in recess in body under reamer (see illustration).

HI-DUTY[®] TUBE CUTTER

No. 274-FW has
Spare Cutting
Wheel



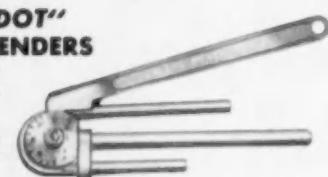
ROL-AIR[®] FLARING TOOL

Here is the tool that automatically burnishes flares to a high polish to give you tight joints every time... makes stronger flares... eliminates call-backs, trouble... builds satisfaction. Flares are rolled in the air above die block. No. 300-F flares 6 sizes: $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ " O.D.

"BLUE DOT" TUBE BENDERS

Bend hard
or soft
tubing—
any angle
up to
180°. No.
364-FH

individual benders for each size of tubing. Also gear and spring type benders and benders for combinations of sizes. Size range $\frac{1}{8}$ " to $1\frac{1}{8}$ " O.D.



Have You Seen These IMPERIAL TUBING TOOLS

No. 374-F COMBINATION TUBE CUTTER AND TUBE CONSTRICTOR



Joint is ready for
swaging when
constricted tube
contacts smaller
tube.

NEW

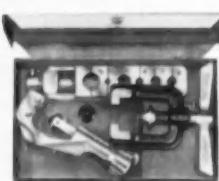


Constrictor roller replaces cutting wheel of this (No. 274-F) tube cutter to convert it into a tube constrictor. (Roller is carried in recess under reamer in body to tool.) Sweating a larger tube to a smaller tube is greatly facilitated by this tool. Views above show how.

THE IMPERIAL BRASS MFG. CO., 534 S. Racine Ave., Chicago 7, Ill.

ROL-AIR FLARING TOOL AND HI-DUTY TUBE CUTTER KIT

Did you know that you can now have the famous Rol-Air Flaring Tool along with the popular Hi-Duty Tube Cutter, both described above, in a sturdy steel kit? Also carries spare cutting wheel. Ask for No. 124-F.



Ask for Catalog No. 81

See Your Jobber

In Canada: 334 Lauder Ave., Toronto, Ontario

FITTINGS VALVES DRIERS CHARGING LINES
TOOLS for Cutting, Flaring, Bending, Pinch-Off, Swaging

IMPERIAL



Circle No. 9 on Reader Service Card

General Chemical Presents

MOISTURE

Dramatized Story of the Cause and Cure
of REFRIGERATION'S No. 1 SERVICE PROBLEM

For You to See and Show
Educational, Entertaining
SOUND-SLIDE FILM
IN FULL NATURAL COLOR



Prepared under the technical direction of DR. WALTER O. WALKER, "Genetron"
Consultant and Dean, Division of Research and Industry, University of Miami.

A Full Report Highlighting

- Sources of moisture in refrigeration systems.
- Problems and damage caused by moisture.
- Recommended methods for removing moisture.

Here's information of real practical value to the air conditioning and refrigeration service engineer . . . a sound-slide film prepared by General Chemical to help you handle the problem of moisture in refrigeration systems.

"Moisture" is a swift-paced, 35-minute sound-slide film in full natural color. It is instructive, informative . . . gives authoritative, up-to-the-minute information on every phase of the costly moisture problem.

Full of "how-to-do-it" topics! Covered are: how moisture gets into the refrigeration system and how to keep it out; the problem of "freeze-ups" and its solution; the causes of corrosion; how moisture reacts to form destructive acids and sludges; how insulation breakdown and motor burnouts are related to moisture; sound practices for care in the field; how to purge moisture from the

refrigeration system; how to dry out a system with or without an oven; facts about desiccants, etc.

Refrigeration Service Engineers Society Members are invited to show this film at their chapter meetings.

Refrigeration and air conditioning wholesalers, equipment manufacturers, and contractors are invited to make

full use of it in briefing their organizations on moisture control, and to show it at meetings for customers. Also available to technical schools and colleges offering refrigeration courses.

FREE! Send coupon for loan of full-color print and record. Free prints also available on long term or permanent basis; write for particulars.

"Genetron" Department **GENERAL CHEMICAL DIVISION**

ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

Without cost or obligation, I would like to have a print and record of "Moisture" on loan for showing (state preferred dates) _____

If you do not have a sound-slide projector, check here and a General Chemical representative will arrange a showing for you.

Name _____

Position _____

Company _____

Where film will be shown (chapter meeting, staff meeting, etc.)

Street _____

City _____ Zone _____ State _____



CR-4

Circle No. 10 on Reader Service Card

**PUTS TROUBLE
BEHIND YOU**
With Backed-Up
Dependability

THE NEW

Servel

ADVANCED SUPERMETIC®



WHISPER QUIET...

Hospital oxygen tent equipment built by five leading manufacturers will use ADVANCED SUPERMETICS! Constantly high capacity and a low decibel rating are "musts" in this type of application. The "New Servel" can give you both!

THE "NEW" SERVEL is being talked about! The trade has heard the good news of the new and improved SUPERMETICS . . . compact space-saving designs that meet the stepped-up capacity and cost-reducing needs of fixture manufacturers . . . fully assembled units for quick hook-ups that help dealers eliminate excessive installation expense. It's the line with the stand-out features that gives you greater performance, more dependability . . . *at a new low price!*

ADVANCED SUPERMETICS are available as complete hermetic condensing units for expansion valve or capillary tube type systems, or as power units only for self-contained fixtures.

Servel's direct factory field engineer in your area will gladly give you all the profitable facts about ADVANCED SUPERMETICS, and offer you the full benefit of our applications know-how and experience. For his name, write or phone us *now*. The number is HArrison 4-3311.

SERVEL, INC. • COMMERCIAL REFRIGERATION DIVISION
EVANSVILLE 20, INDIANA • INTERNATIONAL DIVISION, 19 RECTOR ST., NEW YORK, N.Y.

**THE NAME TO WATCH FOR GREAT ADVANCES
IN AIR CONDITIONING AND REFRIGERATION**

Circle No. 11 on Reader Service Card

APRIL, 1956 • COMMERCIAL REFRIGERATION

GM

GENERAL
MOTORS



YOU KNOW

BEST!

**DEAL WITH THE
PEOPLE**

REFRIGERATION SUPPLY CO.



**Delco electric motors and replacement
parts are sold everywhere—most refrigeration
parts wholesalers have them.**

Delco Products makes the most complete line of motors for the commercial refrigeration industry! Delco Products motors and motor parts are sold and serviced through a nationwide network of distributors and service

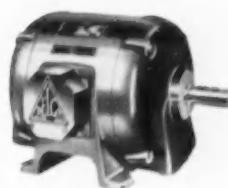
shops. This includes most refrigeration parts wholesalers . . . the people who understand your problems best. Save time and effort by using this convenient one-stop service for both refrigeration equipment and motors.



Shaded-Pole



Capacitor-Start



Open Drip-Proof



DELCO Electric MOTORS

DELCO PRODUCTS DIVISION OF GENERAL MOTORS, DAYTON, OHIO

Proved best by Performance!

Circle No. 12 on Reader Service Card



No other low-temperature insulation can match this unique combination of properties

	LOW "K" FACTOR	SUPERIOR WATER RESISTANCE	EXCELLENT COMPRESSIVE STRENGTH	LIGHT WEIGHT	EASE OF HANDLING	SUPERIOR RESISTANCE TO VERMIN & DECAY	LOW INSTALLATION COST
STYROFOAM	✓ Permanently Low. Avg. 0.25	✓ Remains Dry and Assures Constant "K" Factor	✓ Highest Strength- Weight Ratio of Any Insulation	✓ Lightest of All Rigid Insulations. Avg. Den- sity, 1.8 lbs. per cu. ft.	✓ Pleasant—Fabricates Easily with Common Tools. Doesn't Crumble	✓ Has No Food Value	✓ Lowest Cost, Too, Per Year of Service
INSULATION A		✓	✓			✓	
INSULATION B	✓			✓			
INSULATION C	✓		✓				

Circle No. 13 on Reader Service Card



Styrofoam offers you all the properties you require in a low-temperature insulation

That's why so many leading companies depend on it

**FAIRMONT
CANNING
COMPANY
chooses
Styrofoam**



for its superior resistance to rot, mold, moisture. This Fairmont, Minnesota, company used nearly 1,000,000 board feet of Styrofoam® (a Dow plastic foam) on the floors, ceilings and walls of their new -10° F. freezer. They know its resistance to rot, mold, and moisture will assure long, efficient service.

**LAWSON
MILK
COMPANY
chooses
Styrofoam**



for its high structural strength. This Cuyahoga Falls, Ohio, dairy used Styrofoam in its new freezer and quick-chill room. Owners report, "Its fast, low-cost installation proved it best for milk and candy coolers and freezers, and its recent use as floor insulation under a 20-ton sharp-freeze unit".

**MICKELBERRY
SAUSAGE
COMPANY
chooses
Styrofoam**



for its light weight, ease of installation. This Bushnell, Illinois, meat company found the light weight and ease of handling and bonding of Styrofoam made installation surprisingly economical in its new freezer installation. You can be sure future building plans will include Styrofoam again.

**GRAND
UNION
chooses
Styrofoam**



for its low "K" factor, lasting efficiency. This large supermarket chain re-insulated a 100-foot-long meat cooler with Styrofoam. There's no doubt that the low "K" factor of Styrofoam will stay low. This Dow plastic won't absorb water. It has proved time and time again to be unmatched in permanent insulating efficiency.

For further information on Styrofoam for use in low-temperature work, as a perimeter insulation or pipe covering, please write Dow Plastics Sales Department PL500C-1, THE DOW CHEMICAL COMPANY, Midland, Michigan, or contact your Styrofoam distributor: *The Putnam Organization, Inc., Chicago, Ill.* • *Seward Sales Corp., Elkhart, Ind.* • *Styro Products, Inc., Kansas City, Kansas* • *Atlantic Foam Products Co., Ipswich, Mass.* • *Par-Foam, Inc., Detroit, Mich.* • *Edwards Sales Corp., Minneapolis, Minn.* • *Floral Foam Products, Midland, Mich.* • *Styra Sales Co., New York City* • *William Summerhays Sons Corp., Rochester, N. Y.* • *G. & W. H. Corson, Inc., Plymouth Meeting, Penn.* • *The Emerson Co., Houston, Texas* • *Utah Lumber Co., Salt Lake City, Utah* • *S & S Sales Corp., Milwaukee, Wis.* • *Durofoam Insulation, Ltd., Kitchener, Ontario, Canada* • *Western Foam Products, Inc., Colma, Calif.* • *Wiley-Bayley & Company, Seattle, Wash.*

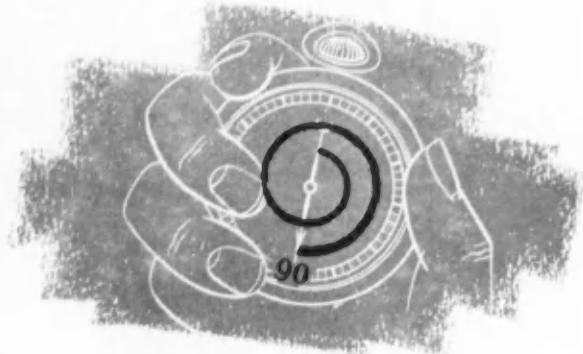
you can depend on DOW PLASTICS



PENN'S "90-SECOND DECISION" PROTECTS YOUR COMPRESSORS AGAINST COSTLY DAMAGE



Penn Series 275 oil protection control operates on the difference between the oil pressure line and the crankcase pressure. Trip-free time delay switch is completely compensated to assure uniform timing under all ambient conditions.



**Series 275 Oil Protection Control
Shuts Compressor Off If
Oil Pressure Doesn't Build Up
Within A Safe Period**

Guarding your refrigeration compressor against damage if oil pressure fails is the job that the Penn Series 275 oil protection control does so well. A sudden oil pressure drop may be a momentary fluctuation—or it may be a serious threat to seals and bearings. There's a critical period . . . say 90 seconds . . . in which pressure must build up to a safe level or it is dangerous to let the compressor continue running.

Here's the way Penn does the job. If oil pressure does not build up when the compressor is turned on, or it dips too low during the normal operating cycle, Penn 275 closely watches pressure readings. In a precise time period—those critical 90 seconds again—pressure must regain a safe level or Penn will automatically shut the compressor off. Then, the trouble can be corrected before damage occurs.

Learn more about this low-cost guard for your refrigeration compressors and other pressure lubricated equipment. Penn will protect you against severe losses in time and money. Get all the details from your compressor manufacturer or wholesaler.

PENN CONTROLS, INC. Goshen, Indiana

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES
Circle No. 14 on Reader Service Card



Mr. Serviceman: DOES YOUR PRESENT CAULKING COMPOUND GIVE YOU ALL THREE?

1. LOWER PRICE

2. EASIER APPLICATION

3. TOP PRODUCT QUALITY

If Not... You Owe It To
Yourself To Start Using

Mortite

**CAULKING CORD or
CAULKING GUM NOW!**

Here's Why...

Mortite Caulking Cord or *Mortite Caulking Gum* will perform your many caulking and sealing jobs faster, better than any other compound—and at much lower cost! Made specifically for and designed by refrigeration servicemen, these two **MORTELL** products come packaged in handy cylindrical containers to fit any tool box. Compact size eliminates waste.

These Facts Tell the Difference!

MORTITE CAULKING CORD— $\frac{3}{16}$ " rope-like strands stay permanently soft. Non-staining, Mortite White in color, ready for immediate painting. Three compact, 8-strand 16-ft. rolls unwind one or more strands at a time without unwinding entire roll.

MORTITE CAULKING GUM—Easily hand-moulded into beads, wads, gaskets or any desired shape. One pound slug ($2\frac{1}{2}$ " x 6") never hardens or cracks—adheres to any clean, dry surface through normal temperature ranges.

Mortite Caulking Cord or *Mortite Caulking Gum* will do the job better than your present caulking compound at a fraction of your present cost. Write today for complete information about these two products and the complete line of **Mortell** refrigeration products.

MAIL COUPON FOR FULL INFORMATION

**J.W. Mortell
COMPANY**

Makers of Famous NoDrip Tape and Mortite



J. W. MORTELL CO.
553 Burch St., Kankakee, Ill. Dept. 4
O.K! Send me full information about the complete
line of Mortell refrigeration products.

Name Jobber Dealer

Address

City State



Chicago serviceman makes more calls per day, fewer call-backs using Ansul Refrigeration Oil

John Bechtel has been able to increase his income because Ansul Oil has cut his call-backs. Now, he is able to call on more customers per day than ever before. This is possible because Ansul Oil is *dry, wax-free, non-foaming* and tops in the refrigeration industry for *stability*. According to John it's the one oil that works for him, not against him.

Because Ansul Oil is *dry* you can almost forget about trouble caused by acid formation and sludge deposits, provided of course that you keep the refrigerant dry. The Ansul T-FLO DRIER will take care of that job for you. The *non-foaming* feature of Ansul Oil prevents excessive carry-over from the compressor to the low side. Keeping the oil where it belongs reduces the danger of broken valves. Using an oil that is *wax-free*

can save you a lot of trouble. Wax can plug capillaries as well as cause sticking expansion valves. And because Ansul Oil is *stable* you can be sure of long lasting lubricity. Remember, too, that Ansul Oil is an all-purpose oil with special emphasis placed on its compatibility with the fluorinated refrigerants.

Ask your Ansul Wholesaler about the new DRY-EYE fitting. The window changes color to let you see if the system is wet or dry.

Specify Ansul Oil on your next order. It's the high quality oil that works for you, not against you. THE ANSUL CHEMICAL COMPANY, Marinette, Wisconsin.



ANSUL

Circle No. 16 on Reader Service Card

APRIL, 1956 • COMMERCIAL REFRIGERATION



Here's why it pays to ask for Anaconda by name

1. Anaconda Refrigeration Tube is 99.9% pure copper, phosphorus deoxidized—clean—dry—made to meet A.S.T.M. Specification B280-55T. It stands up in service.

2. Anaconda Refrigeration Tube is consistently uniform in gage, size, temper—easy to work with.

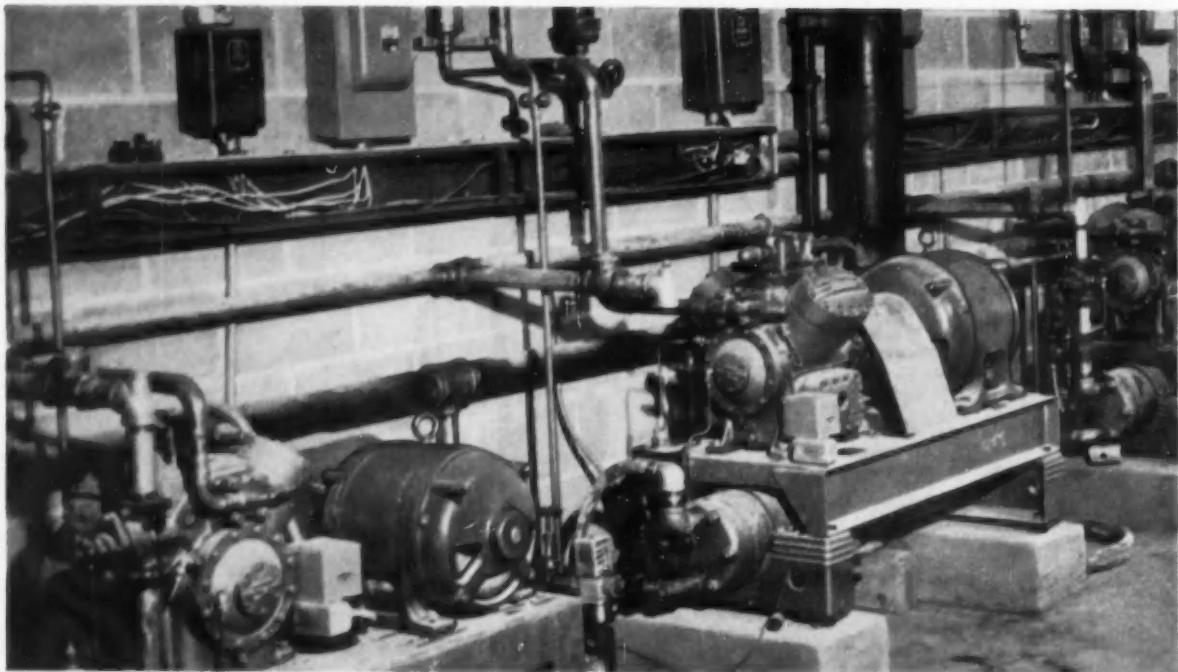
3. Anaconda Fittings, Vibration Eliminators, and Tube are built to match—for fast, easy installation.

4. All these extra values are yours—just by asking for Anaconda by name.

See your Anaconda Distributor, The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

ANACONDA[®]
REFRIGERATION PRODUCTS

Circle No. 17 on Reader Service Card



Let each job select



MOTORS ARE Performance-Rated[®]

Why settle for less motor than you need? Or why pay for more motor than you can use? The most efficient and economical motor is one that is fitted to its application ... A Performance-Rated Century Motor.

Performance-Rating means simply that from



Squirrel Cage, Polyphase Motors ... $\frac{1}{2}$ to 400 H.P. ... available in drip proof and dust proof frames, with sleeve or ball bearings, foot or flange mounting (cushion base available through 5 H.P.).



Repulsion Start, Induction Motors ... single phase ... $\frac{1}{2}$ to $7\frac{1}{2}$ H.P. ... provide high starting torque on applications requiring unusually low starting current.



Totally Enclosed Fan Cooled Motors ... $\frac{1}{2}$ to 100 H.P. For application in atmospheres containing abnormal quantities of dust, grit, oil or chemical fumes. May be used out of doors.

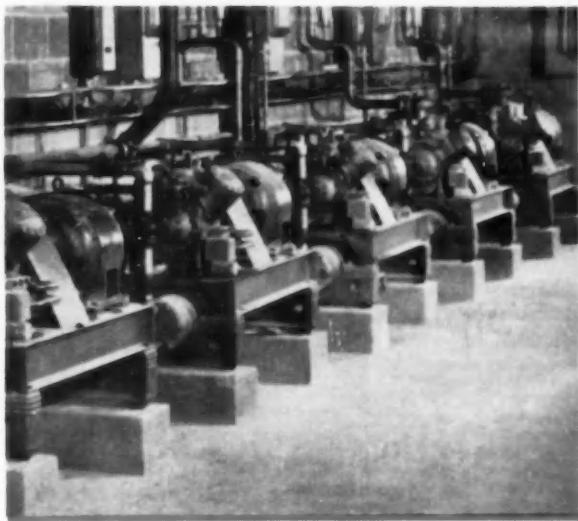


Split Phase, Unit Heater Motors ... $\frac{1}{20}$ to $\frac{1}{2}$ H.P. ... available with extended-through bolts or cushion base ... split capacitor, DC and polyphase types also available.



Slip Ring Motors ... 1 to 400 H.P. ... a favorite for applications requiring unusually low starting current. Available in drip proof, splash proof and dust proof frames.

Circle No. 18 on Reader Service Card



for example: This large Midwestern warehouse refrigeration installation is powered by seven Performance-Rated Century Motors, ranging in size from 3 to 10 H.P.



Century Motors for Modern Ideas . . . AC or DC . . . Single-phase or Polyphase . . . drip proof, dust proof or explosion proof frames.

its own motor!

TO FIT YOUR SPECIFIC NEEDS

Century's complete line of motors and generators you'll get precisely the right size, speed, frame enclosure and torque characteristics you need. Century application engineers or Authorized Century Distributors are always available to help you fit a Performance-Rated Motor to your job.

IF YOU SERVICE MOTORS, YOU CAN SELL MOTORS...

for compressors, oil burners, blowers, heaters, pumps, fans and scores of other appliances. Century will provide you with a handsome display stand, plus an easy-to-sell assortment of motors that will put you into the profitable replacement motor business. Mail this coupon for information today!

Performance-Rated[®] Motors

1/8 to 400 H. P.



CENTURY ELECTRIC COMPANY

1806 Pine Street • St. Louis 3, Missouri

15A

Circle No. 18 on Reader Service Card

ABOUT PEOPLE

Lawrence J. Bonhotal has been named service manager of



Acme Industries, Inc. Prior to his appointment by Acme, Bonhotal held the same position with the Ice Machine Div. of the American Gas Machine Co. He also served as a field service representative and assistant service manager for the Remington Air Conditioning Div.

Henry F. Zuba, vice president of Tork Clock Co., Inc., Mount Vernon, N. Y., has been named to head a new refrigeration Control department for the exclusive handling of time switch and automatic control problems in the refrigeration field. Michael Bizzoco, formerly in charge of production of special time switch equipment, has been designated as Zuba's assistant. He will work on the development of units for commercial defrost.

Alco Valve Co. has reorganized its sales department by dividing the United States market into four regions and promoting key personnel to new positions as regional sales managers and district managers. The new department will be headed by

George J. Boepple as director of sales. Newly appointed region-



al sales managers and their headquarters are: eastern region, **Thomas J. Phillips**, New York City; northern region, **Richard N. Meyer**, Chicago; and southern region, **Arley L. Baker**, St. Louis. Pacific Scientific Co. will represent Alco in the western region with headquarters in San Francisco and Los Angeles. Two new district managers have been named—**W. B. Knox** in Atlanta, and **W. W. Hull** in St. Louis—and additional field engineers have been added in New York, Kansas City, New Orleans, and Miami.

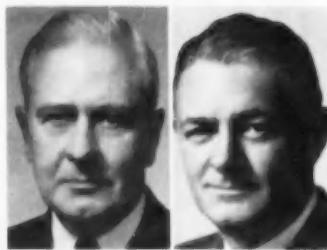
eastern district sales promotion manager for Westinghouse and as advertising and sales manager of several large retail appliance stores.

Edwin B. Ahrens has been elected president of the C. Schmidt Co. succeeding



H. C. Ahrens, who retired after serving with the company for 53 years. Other officers re-elected are John E. Ahrens, vice president and treasurer; and E. J. Ahrens, secretary. The new president started with the company in 1940.

Cloud Wampler has been elected chairman of the board of Carrier Corp., and in that capacity will continue as chief executive officer of the company. **William Bynum**, executive vice president since 1951, was elected president to succeed Wampler, and will be in charge of operations. Wampler joined Carrier in 1941



C. Wampler

W. Bynum

as executive vice president, was elected president in 1942, and has been both chairman and president since 1952. Bynum joined Carrier in 1930 as an engineering trainee. He was named manager of the direct sales department handling "big" air conditioning in 1946, became general sales manager in 1948, has been a vice president since 1949.

Kramer Trenton Co. has promoted **Bill Pietkiewicz** to assistant chief engineer. Pietkiewicz joined the firm in 1953, and has served as project engineer and sales engineer covering design and layout of refrigeration systems, coil design, and customer requests.

Lawrence H. Hirschbach has been appointed manager of



marketing for General Electric home heating and cooling. Hirschbach formerly was manager of builder and modernization sales. In the heating industry since 1933, he had served previously with General Electric from 1947 to 1949 and returned to GE as manager of HHC builder sales in 1953.

Emil Rasa has been named district sales manager for O. A. Sutton Corp. Rasa will supervise sale of air circulators and air conditioners in the Cleveland area which includes Detroit, Toledo, Buffalo, Syracuse, and Rochester. Formerly employed by Worthington Corp. he also has served as

W. Douglas Read has been appointed assistant to president Samuel H. Shipley of York-Shipton, Inc. Read has had a long and

WORKS LIKE A DREAM!



The NEW Frigidaire MODULEX EXPANSION VALVE HAS EVERYTHING YOU'RE LOOKING FOR

Expect superior performance when you install the new Modulex valve. For, along with its distinctive copper-bronze finish, this valve has important advancements in its design and construction. Result: a new standard of reliability in refrigeration control!

The Frigidaire Modulex valve installs anywhere, operates in any position. It's easy to adjust, and it holds its setting. Saves time—saves trouble—and protects your profit.
FRIGIDAIRE DIVISION, General Motors Corporation,
Dayton 1, Ohio.

The Frigidaire District Headquarters in your area has a complete stock of refrigerant controls for every purpose. Make it your headquarters for quality installation accessories and replacement parts. One-stop service means economy for both you and your customers.

FRIGIDAIRE



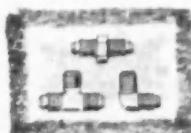
parts and accessories



THURO-DRIERS



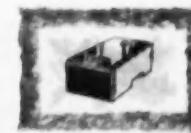
CONTROLS



FITTINGS



SHAFT SEALS



RELAYS

colorful career as an American sales representative in Europe, the Near East and Africa.

Herbert Wolf has been appointed chief engineer of Worthington Corp.'s air conditioning and refrigeration division. Wolf will supervise all research and development activity, except compressor design. He will be headquartered at the Harrison Div.

until the air conditioning and refrigeration division moves to the new Worthington Ampere, East Orange, N. J. In 1950, he joined Worthington as a product engineer and continued in this capacity.

has been elected president, and **Albert M. Gibson** executive vice president and secretary. **John F. Bolger** and **H. E. Greene** continue as directors.

Frank S. Gibson, Jr. has been elected chairman of the board of Gibson Refrigerator Co. to succeed Charles J. Gibson, who has retired. **Charles J. Gibson, Jr.**,

PAUL SHIRK
REFRIGERATOR SERVICE
720 YALE AVE., FRESNO, CALIF.

Highside Chemical Company,
Clifton, New Jersey.

Gentlemen:

For a long time I have meant to let you know how much I appreciate your product "Thawzone".

I was instrumental in getting a local refrigeration supply house to stock Thawzone beginning in 1938. Since then I have added Thawzone to probably over one thousand sealed and open refrigeration units. As of this time I have not seen one case of trouble which can be traced to Thawzone.

My bottle of Thawzone suffices for a large stock of dryers which I do not have to carry and, on your ads say, gets plenty quick results. It is rather gratifying to be able to do a difficult job easily, quickly and permanently. Without Thawzone I would not feel nearly so sure of the results I could accomplish.

Very truly yours,

Paul Shirk

**HIS
STANDARD
DRYING
PROCEDURE:
CAREFUL
WORKMANSHIP
AND
THAWZONE**

THAWZONE SAVES VALUABLE TIME

You know from experience that other methods usually need a considerable amount of time in order to clear up moisture. That's NOT the case with Thawzone, since it travels quickly throughout the entire system, searching out all moisture and DESTROYING it. This action takes minutes... not hours.

The use of Thawzone not only saves your valuable time, but avoids annoying callbacks due to recurring moisture conditions. At the same time, Thawzone neutralizes acids formed by the constant breakdown of oil.



1. Actually destroys moisture... not a mere anti-freeze.
2. Scavenges oxygen... the only product that eliminates this corrosion-causing chemical.
3. Cannot cause pressure drop.
4. Cannot clog with oil.
5. Does not release moisture when temperature changes.
6. May be used in open or hermetic units containing "Freon", methyl chloride, methylene chloride, or isobutane.
7. Costs only about 8 cents per lb. of refrigerant treated. Used in small amounts.

THAWZONE®

The Only Product That DESTROYS Water
...and Reaches ALL of it

Circle No. 20 on Reader Service Card

22

You can use Thawzone in practically any "Freon" or methyl unit. Your wholesaler has Thawzone. Phone him now. Stewart Industries, Inc. (formerly Highside Chemicals Co.), 4 Collax Avenue, Clifton, N.J.

Copeland Refrigeration Corp. has named **W. G. von Meyer** and **Rudy Berg** as vice presidents. Von Meyer has been with Cope-



land since 1933, serving most recently as manager of national accounts and as sales and advertising manager. Berg joined Copeland in 1934 and has served in various sales positions. He has been instrumental in organizing the firm's system of distribution through refrigeration wholesalers.

Two executive appointments have been announced by Marvair Div. of Muncie Gear Works, Inc., Muncie, Ind. **David B. Dell** was named sales manager for the western division and **Clarence M. Ehrhardt** was made sales manag-



er for Marvair's eastern division. Both will work out of Muncie.

John Bain, a sales engineer in the Des Moines branch office of Minneapolis-Honeywell Regu-

lator Co., has been promoted to branch manager to replace N. L. Rutgers who has resigned, and **Gordon Klossner** has been transferred from Chicago to manage the company's Fort Wayne district office, replacing George Steffins who was earlier named manager of Honeywell's Memphis office. Klossner was formerly in charge of Honeywell's service and installation section in Chicago. **Frank Neal**, formerly a market development salesman in the company's Los Angeles office, has been named western market sales manager for schools; **Dick Beau-bien**, senior commercial salesman in San Francisco, has been promoted to branch commercial sales manager there; and **Bob Hoefer**, formerly senior commercial salesman in Akron, has been named branch commercial sales manager in Cincinnati.

The refrigeration sales department of Virginia Smelting Co., West Norfolk, Va., announces the appointment of two new sales representatives, **Earl S. Studwell** and **Luther Cox**. Studwell will



E. S. Studwell



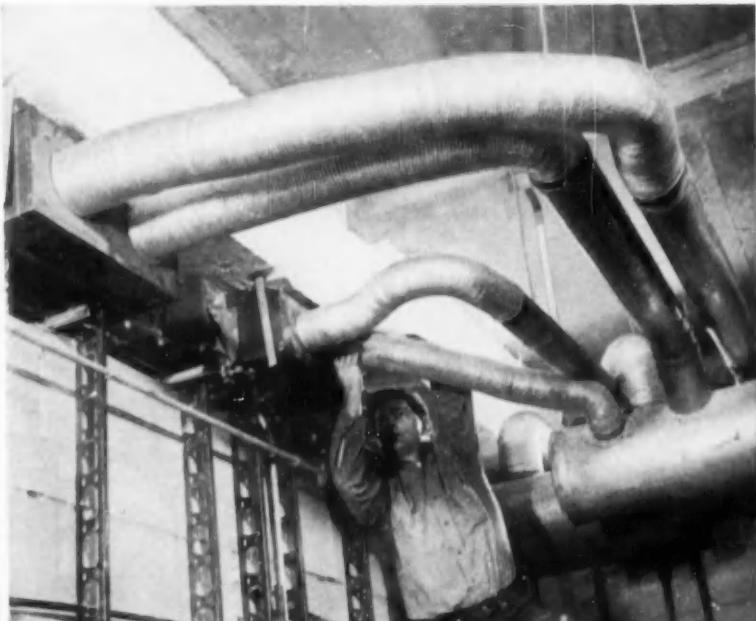
L. Cox

travel the states of Iowa, Nebraska, Minnesota, Wisconsin, and northern Illinois. Cox will cover Virginia, North Carolina, the District of Columbia, and portions of South Carolina and Maryland. He succeeds Robert J. Wygal, who returns to the manufacturing div.

R. G. Miner, Jr., E. T. Neubauer and A. M. G. Moody have been promoted to positions of chief engineer in the Trane Co.'s Products Engineering Dept. They will head, respectively, the controls and electrical, recipro-

Thermaflex: flexible ducting

outperforms rigid ducting and installs faster at less cost



Whether it's a hot or cold air system, or both, you will find that you will save time and money when you use Thermaflex® high or low pressure flexible ducting as a connector to snake around bends and obstructions. You can forget about special elbows or costly connectors, for when you use Thermaflex one man, without special tools, can make the necessary connections in a matter of seconds. You'll find, too, that Thermaflex is designed for the job. It is flame-proof and waterproof and will give years of trouble-free service. Its

use in a system reduces vibration and deadens air stream noises.

Thermaflex is engineered to provide excellent air flow characteristics and provides a minimum friction loss in bending around obstructions.

Write, today, for more information about this very useful product. Fill out the attached coupon and your information will be sent by return mail. Let us show you how you can save both time and money on your next air conditioning system.

Flexible Tubing

CORPORATION

GUILFORD, CONNECTICUT • LOS ANGELES 64, CALIFORNIA

Flexible Tubing Corporation, Dept. 6, Guilford, Connecticut
Please send me more information on Thermaflex.

Name _____

Title and Company _____

Address _____

City _____ Zone _____ State _____

Circle No. 21 on Reader Service Card

cating compressor and centrifugal compressor phases of the company's product development program.

Walter Lovett has been named manager of a newly created Technical Service Dept. at Pittsburgh Corning Corp. Aim of the department is to provide technical help to customers and prospects for PG glass blocks and Foamglas insula-

tion. Lovett has been with the company since 1950, formerly was assistant professor in civil engineering at University of Pittsburgh.

Corp. From 1944 to 1951, he was manager of engineering, Baker Refrigeration Corp.

A. J. Millinekrodt has been appointed special projects engineer for Drayer Hanson, Inc. Since 1951, he has been chief engineer at U. S. Air Conditioning



**Leading the Way
in
Commercial Refrigeration
FOR MODERN FOOD MARKETS**

**Self Service
Meat Display**

**Refrigerated
Produce**

Frozen Food Case

**Double
Decker
Dairy**

**Check These
Way-ahead
IDEAL Features**

- ✓ Auxiliary shelves for extra sales.
- ✓ Porcelain and stainless steel on interiors and exteriors.
- ✓ Color band styling.
- ✓ Scientific refrigeration — reduces spillage, keeps perishables fresher longer.
- ✓ Dairy case bottom shelf capacity — two milk containers high.
- ✓ Ful-Vue, Easy Reach design.
- ✓ Complete line of refrigerated equipment for all food stores.

Exclusive franchises available

IDEAL STORE FIXTURE CO., Inc.

Main Office
41 Utica Ave.,
Brooklyn 13, N. Y.

Branch Office
498 Broad St.
Newark, N. J.

Quality and Service • Since 1928

Circle No. 22 on Reader Service Card

Paul T. McCormack has been appointed representative for Federal Refrigerator Mfg. Co. in Ohio, West Virginia, western Pennsylvania and eastern Kentucky. The



P. T. McCormack

R. Ennis

territory formerly was handled by George Rind. **Oliver Ennis** and **Robert Ennis** have been appointed to represent Federal in Arizona, Nevada and the West Coast area.

Robert E. Thomas, Jr., has been named office manager for "Kinetic" Chemicals Div. in the Los Angeles district of the Du Pont Co.'s Organic Chemicals Dept.

Appointment of Walter S. Wolff as European regional manager has been announced by White-Rodgers Electric Co., St. Louis. Wolff will supervise the procurement of importers for the White-Rodgers line



of automatic controls used in heating, refrigeration and air conditioning. He will be assisted by Harald R. Port whose title will be European district manager.

E. C. Wolford has been named eastern district sales manager for the Blower Div., of Lau Blower Co. Wolford is a veteran

If your prospect
does this

suggest
time payments

to close the
sale



TODAY the demand on working capital is heavy. Preferring to keep their cash and usual lines of credit intact for current operations, more and more of your prospects will want to finance their purchases of equipment. Be sure your proposals are complete by including information about buying on the nationally

popular COMMERCIAL CREDIT PLAN. To discover how COMMERCIAL CREDIT's tailor-made Refrigeration Financing Plan can help you build prestige and close sales, call our office in your city or write COMMERCIAL CREDIT CORPORATION, 14 Light Street, Baltimore 2, Maryland.

COMMERCIAL CREDIT CORPORATION A service offered through subsidiaries of Commercial Credit Company, Baltimore . . . Capital and Surplus over \$180,000,000 . . . offices in principal cities of the United States and Canada.

**LINE UP
with
SPORLAN**

for **Right-Down-the-Line
PEAK PERFORMANCE
on All Air Conditioning
Installations**



**No matter how large or small the system, there's a
perfect Sporlan hook-up available from Catch-All to Distributor**

Everyone knows about Sporlan Catch-Alls, the perfect Filter-Driers. They assure you filtering instead of straining. Dirt-free, sludge-free systems are the result. Harmful corrosive acids are adsorbed and retained. In addition, they dry down to an end point so low that any remaining moisture is absolutely harmless.

The new Sporlan Solenoid Valves offer even greater Peak Performance with the new power-packed Blue Seal Coil. No more worries over electrical failures. They're really tight closing, too!

Sporlan Thermostatic Expansion Valves with the exclusive Flow-Master element, are your guarantee against hunting. Alternately starved and flooded evaporators will never plague you again with these Peak Performers!

Uniform distribution to all circuits are yours with Sporlan Peak Performance Distributors. Their perfectly designed conical button and interchangeable nozzles give them greater flexibility and a much larger range of application.



**SPORLAN
VALVE COMPANY**
7525 SUSSEX AVENUE St. Louis 17, Mo.

EXPORT DEPT. AD AURIEMA INC., 89 BROAD STREET, NEW YORK 4, N.Y.

Circle No. 24 on Reader Service Card

APRIL, 1956 • COMMERCIAL REFRIGERATION

in the Lau organization, having been associated with the firm for 19 years. He was formerly a salesman for National Cash Register Co.

Arnold Carlin has been appointed as a sales engineer in the Air Conditioning Div. of the Pacific Scientific Co. Carlin will represent White-Rodgers controls and Alco valves for Pacific, operating from the firm's Los Angeles office. Previously, he served as test engineer with the American Gas Association Laboratory, and as chief test engineer for a major manufacturer of control equipment.



Morton M. Tillman, air conditioning district manager for Emerson Radio and Phonograph Corp., has been advanced to east-

troit factory branch field representative, to Chattanooga, Tenn.; **R. C. "Bob" Servat**, former New Orleans branch head, Houston branch; and **George A. Williams, Jr.**, assistant manager Detroit branch, to manager Detroit branch.

Allen Creekbaum and Harold De Long have been appointed air conditioning field managers for the Columbus, Ohio division of Lennox Industries, Inc. Creekbaum joined Lennox as a dealer



A. Creekbaum



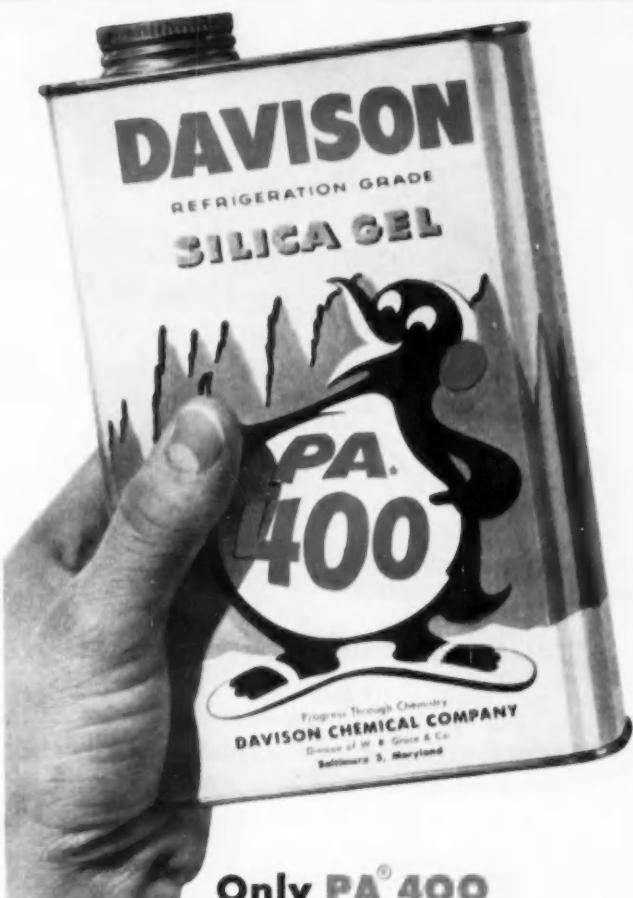
H. De Long

in 1933 and became district manager of the southeastern region in 1953. De Long started with the company in 1951 as field service engineer. He became manager of the service department in 1952, and was named assistant sales manager for the Columbus division in 1954.

Three branch office managers recently were appointed by General Controls Co. They were: **John F. Dickson**, former De-

ern regional sales manager of the Air Conditioning Div. Tillman will headquartered in New York City and work with eastern Emerson distributors and salesmen.

William H. Treffinger has been named new manager of the Morrison plant of the Herman Nelson Div., American Air Filter Co., Inc. Treffinger succeeds Robert Bryan, who resigned.



Only PA® 400
gives you all the required qualities

- HIGHEST CAPACITY ● PHYSICAL ADSORPTION NOT CHEMICAL ACTION
- DRIES REFRIGERANTS TO BELOW 2PPM AT 120°F. ● ADSORBS ACIDS ● NON-DUSTING
- MINIMUM PRESSURE DROP ● NON-DELiquescent ● NO CHANNELING

Progress Through Chemistry

DAVISON CHEMICAL COMPANY

DIVISION OF W. R. GRACE & CO.

Baltimore 3, Maryland

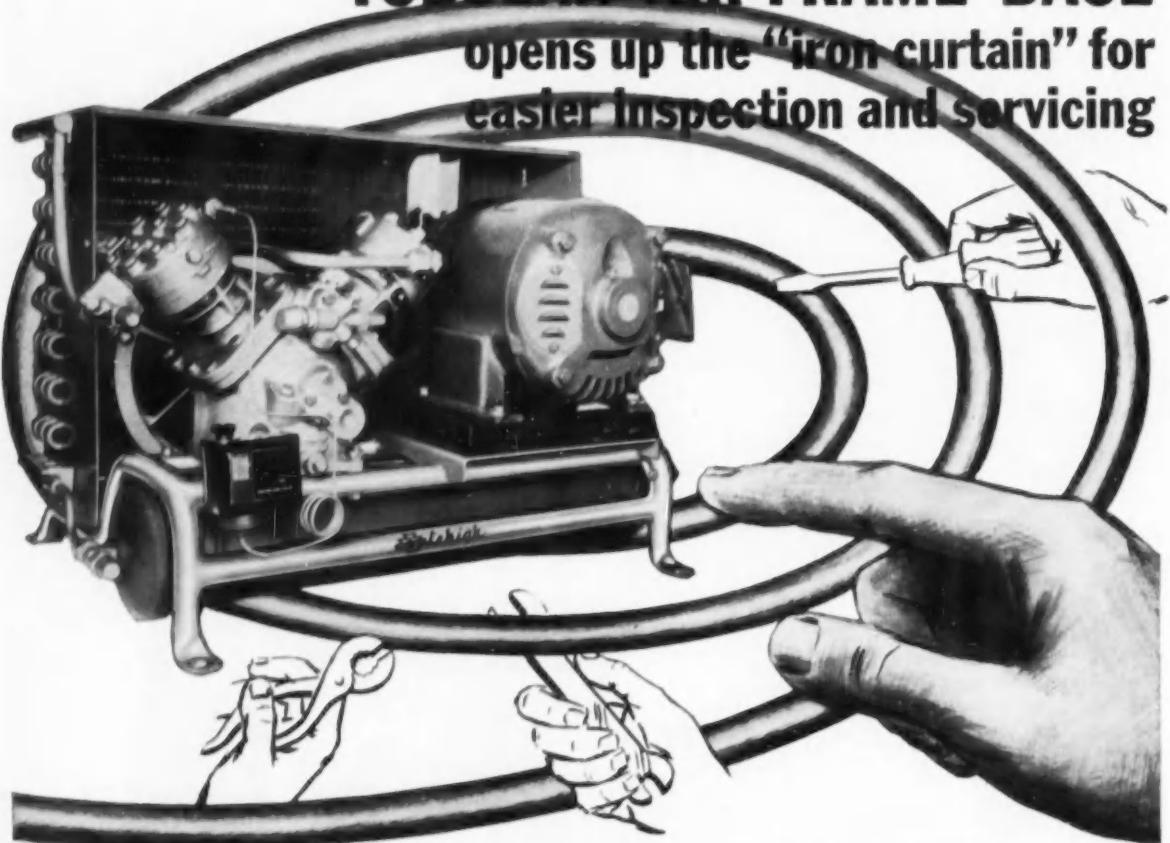
Producers of: Catalysts, Inorganic Acids, Superphosphates, Triple Superphosphates, Phosphate Rock, Silica Gels and Silicofluorides. Sole Producers of DAVCO® Granulated Fertilizers.

Circle No. 25 on Reader Service Card

LEHIGH'S *New*

TUBULAR AIR-FRAME BASE

opens up the "iron curtain" for easier inspection and servicing



—and offers many other advantages...

Now, a radical change of the design of LEHIGH BLU-COLD Condensing Unit bases; is available from $\frac{1}{2}$ H.P. thru 1 H.P. in air, air-water and water cooled models. Models from $1\frac{1}{2}$ H.P. thru 3 H.P. to be available shortly. Replacing the conventional steel base with iron legs is a heavy tubular type frame which has many advantages for the user.

- Increased air flow over the receiver for faster and greater sub-cooling.
- Greater accessibility to all compressor and motor bolts.
- More convenient cleaning of the complete unit.
- Easier inspection and servicing.
- Stronger and more rigid mounting.
- Less over-all weight, making the unit easier to handle and less costly to ship.

"America's Most Modern Condensing Units"
PACKAGED, STANDARD & HEAVY DUTY

Road Proven
REFRIGERATED TRUCK SYSTEMS
Compressors for
AUTOMOTIVE AIR CONDITIONING



Lehigh Manufacturing Co.

DIVISION OF LEHIGH, INC.

Plant: LANCASTER, PENNA.

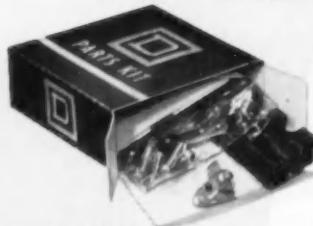
Export Department, 13 E. 40th Street, New York City

Circle No. 26 on Reader Service Card

APRIL, 1956 • COMMERCIAL REFRIGERATION

Qwik Change

with **PACKAGED** MOTOR STARTER PARTS!



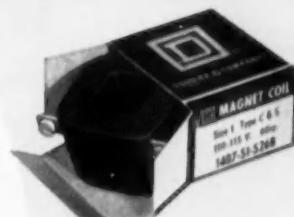
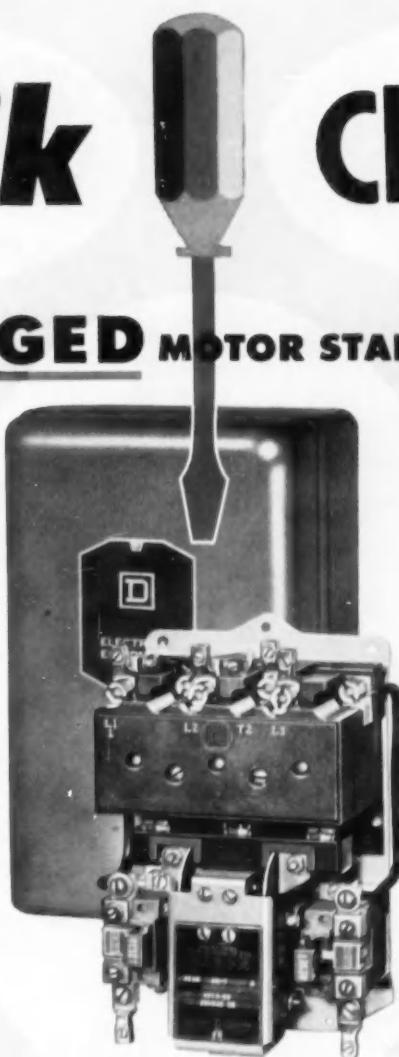
INTERLOCKS

A wide variety of quick-change, front-mounted interlocks adds flexibility for special applications



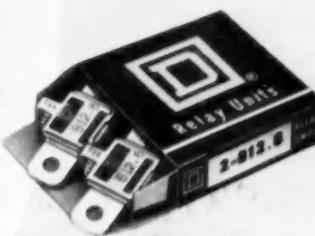
CONTACTS

Packaged replacement contacts are easily installed without disturbing wiring



COILS

Screwdriver is only tool required for quick change of magnet coil to accommodate different voltages



O. L. RELAYS

A wide variety of easily selected, packaged overload relay heater units provides quick changes to meet varying requirements for overload protection



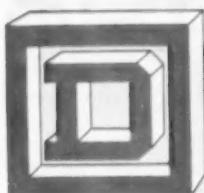
PUSH BUTTONS AND SELECTOR SWITCH

These Kits contain all parts necessary to make quick changes from standard starters to either push button or selector switch controlled devices



EASY to Identify!
EASY to Buy!
FASTER to Install!

ASK YOUR ELECTRICAL DISTRIBUTOR FOR SQUARE D PRODUCTS



SQUARE D COMPANY

Circle No. 27 on Reader Service Card



Chase® Type L Copper Tube!

It's a sure thing! Your air conditioning and refrigeration equipment will deliver dependable, *peak performance over the years*, when you fabricate with Chase Type L copper tube!

Inside and outside diameters accurate to thousandths of an inch assure proper tolerances for fitting connections. That means extra-easy assembly of finned sections. Smooth interiors of tube and Chase solder-joint fittings insure a steady, even flow of coolants. And for extra cleanliness, you can get Chase Type L copper tube tightly capped at slight extra cost.

Order Chase Type L copper tube, Chase extra-soft copper refrigeration tube and Chase wrought copper solder-joint fittings from the Chase wholesaler near you!

The Nation's Headquarters for Brass & Copper

Atlanta Baltimore Boston Charlotte Chicago Cincinnati Cleveland Dallas Denver Detroit Grand Rapids Houston Indianapolis Kansas City, Mo. Los Angeles Milwaukee Minneapolis Newark New Orleans New York Philadelphia Pittsburgh Providence Rochester St. Louis San Francisco Seattle Waterbury

Circle No. 28 on Reader Service Card

APRIL, 1956 • COMMERCIAL REFRIGERATION

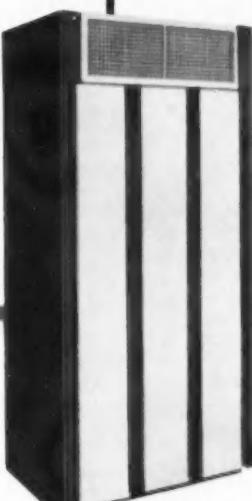
Chase 
BRASS & COPPER CO.

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNEDY COPPER CORPORATION

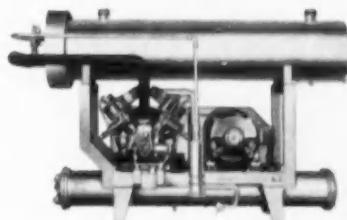
3 FACTUAL reasons why *Curtis* dealers can make more money— CONSISTENTLY:



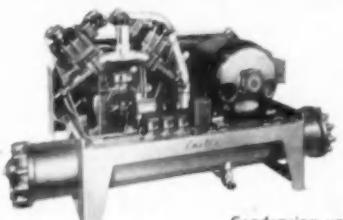
Evaporative Condensers
and Cooling Towers
up to 100 tons.
Air handling units to match.



Packaged units
in a rainbow
of colors—
a CURTIS exclusive.
3 through 50 tons.



Packaged Liquid Chillers—
7 1/2 to 100 tons—F-12 or F-22.
With room console units
to provide controlled cooling and heating
without duct work.



Condensing units
up to 100 tons—
F-12 or F-22.



Packaged
Air Cooled
Air Conditioning Units—
2 through 7 1/2 tons.
Residential and
Commercial applications.

Remember
YOU CAN COUNT ON

Curtis

MANUFACTURING COMPANY
REFRIGERATION DIVISION • 1915 Kienlen Ave., St. Louis 20, Mo.



INDUSTRIAL
AIR COMPRESSORS



AUTO LIFTS



AIR CYLINDERS



CAR WASHERS



AUTOMOTIVE
AIR COMPRESSORS



CM-11



YOU ARE CHOSEN...

because you qualify!

Do you know why most of you get this magazine without charge? How can the publisher afford to send you this leading magazine every month—without cost to you? Here's why . . .

*Advertisers insist on
Quality Readership*

It's that simple!

Your local refrigeration and air conditioning wholesaler pays us for your subscription to COMMERCIAL REFRIGERATION & AIR CONDITIONING because he knows you merchandise, sell, install or service refrigeration and air conditioning equipment; because he knows you are responsible for specifying and/or buying this kind of equipment. Naturally, he is willing

to spend this kind of money only on the best and most important people in his territory.

COMMERCIAL REFRIGERATION & AIR CONDITIONING readers are **hand-picked**. They are important people in the refrigeration and air conditioning business—they are carefully chosen because of their interest in new and better air conditioning and refrigeration products, equipment and techniques.

*This type of circulation is called
Franchise Circulation*

That's why—COMMERCIAL REFRIGERATION & AIR CONDITIONING spends considerable time, money and effort on every issue to make it worthwhile reading—realistically helpful, intelligently interesting and useful to our 25,000 important readers.



Commercial Refrigeration & Air Conditioning

1240 ONTARIO STREET

CLEVELAND 13, OHIO

**C B &
3 4 9 1 2**

Another Carload!

**WESTINGHOUSE
AIR CONDITIONING**
At Special Introductory Prices!

CAF
LO
L

Modern
AIR CONDITIONING
32-09 36th Ave
LIC
AS. 8-7475



Joseph Galletta, Owner, and Henry R. Zuniga, Chief Engineer, Modern Air Conditioning Company, Long Island City, N. Y.

**We bought
our second carload
of Westinghouse
Air Conditioning
in 21 days***

***Those special introductory prices did it...**

THANK YOU WESTINGHOUSE FOR THOSE SPECIAL

"COMPETITION OUTBID RESIDENTIAL



"Sales of Westinghouse Year-Round Units, like this one we're installing to replace a furnace at the home of Mr. and Mrs. Anthony Nicolini, 151-11 24th Road, Whitestone, Queens, N. Y., completely eliminated our normal off-season slump, increased our residential unit sales 75% over last year," say Mr. Galletta and Mr. Zuniga.

YOU CAN BE SURE...IF IT'S
Westinghouse

What do you
need to increase
your AIR
CONDITIONING
business?

INTRODUCTORY PRICES . . .

ON EVERY JOB; SALES RISE 75%!"

**Says Joseph Galletta, Owner, and Henry R. Zuniga, Chief Engineer;
Modern Air Conditioning Company, Long Island City, N. Y.**

"When the Westinghouse special introductory prices were announced, we ordered a carload right away. Then we went to work on our prospects selling quality PLUS this amazing price. The results amazed us. Within three weeks we needed—and ordered—another carload. We're convinced that any dealer can 'clean up' with a deal like this."

Heating and cooling for the price of cooling alone!

"The Westinghouse Year-Round Residential Unit is our 'hottest' item. It should be. Because now we can sell 3-ton Westinghouse units at competitive 2-ton prices. To new home builders we advertise that we can install a Westinghouse heating-cooling unit for what they'd otherwise pay for heating alone, (or cooling alone). We prove to them that this unit delivers up to 20% more cooling capacity per dollar than competition. When you can tell that kind of a story, your selling is practically done for you."

Off-season slump eliminated!

"Thanks to Westinghouse, we're now on a year-round profit basis. The off-season demand for the Westinghouse commercial units and year-round residential models has raised cold-weather sales far above our expectations. Since early January—when these Westinghouse prices were announced—we've had all we could do to keep up with the work."

"Even greater residential sales expected with new 'ACU'"

"With the new air-cooled condensing units now being delivered, we expect our residential sales to really jump. Not only because of the low price, but because they completely eliminate the need for water, plumbing, special sewage arrangements. They can be installed inside or outside the home and, of course, can be used with any existing warm air furnace."

Plenty of distributor support!

"Our Westinghouse distributor has done wonders with help on installation and prompt delivery. They're the most dependable people with whom we've ever done business."

Lower Prices? • Better Product? • More Promotion Support?

**Your Westinghouse
distributor has
the answers!**

CALL OR WIRE TODAY! DISTRIBUTOR LIST ON NEXT PAGE . . .
Learn how you, too, can offer "more cooling per dollar"

Call or wire your nearest Westinghouse Distributor collect

ALABAMA

BIRMINGHAM
Flint Refrigeration Co.
127 S. 20th Street
Mr. Earl E. Allen, President

MOBILE
Associated Equipment Company
717 St. Joseph Street

ARIZONA

PHOENIX
Fresno Distributing Co.
21 East Durango Street
Mr. Walter A. Biddle, Mgr.

KANSAS

LITTLE ROCK
Fagan Air Conditioning Co., Inc.
900 Center Street
Mr. Jack W. Thompson, General Mgr.

CALIFORNIA

BAKERSFIELD
The Isotherm Co.
605 Williams St.
Mr. Rowell Smith, Co-owner & Mgr.

FRESNO

Air Conditioning Sales, Inc.
2208 Tuolumne Street
Mr. Nat N. Leos, Mgr.

INDIO

Frank Cavanaugh's Electrical Service
45-248 Jackson Street
Mr. Frank Cavanaugh, Owner

LOS ANGELES 17

Comfort Distributors Corp.
1709 W. Eighth St., Rm. 1125
Mr. Fred Wallhouse, Manager

COLORADO

DENVER 4
T. C. Alexander
1100-06 Cheape Street
Mr. T. C. Alexander

CONNECTICUT

BRIDGEPORT 8
Air Conditioning Corp. of Connecticut
41 California Street
Mr. Robert Stember, Manager

FLORIDA

TAMPA 1
Tampa Armature Works, Inc.
401 South Morgan Street
Mr. M. D. McRae, Jr.

GEORGIA

ATLANTA
Raymond Distributing Company
150 Roger Street, N.E.
Mr. T. R. Sockwell, Pres.

MACON

Aaron Torch & Sons, Inc.
452 First Street
Mr. Aaron Torch, Pres.

ILLINOIS

CHICAGO 44
Mid-States Air Cond. Equip., Inc.
4640 North Washington Blvd.
Mr. Marshall D. Segal, Pres.

PEORIA 2

O'Brien Distributing Co.
100 Walnut Street
Mr. G. A. O'Brien, Sales Engr.

INDIANA

EVANSTVILLE
Evanstville Electric Service, Inc.
1025 Ross Ave.
Mr. Chas. R. Legamee, Pres.

FORT WAYNE

Westinghouse Electric Supply Co.
Box U.S. 30 & Mayor Road
Mr. H. W. Schenck, District Mgr.

INDIANA (Cont.)

GARY
G. W. Berkheimer, Inc.
1040 Washington St.
Mr. George Primich, Vice-Pres.

INDIANAPOLIS
Illingworth Construction & Engr. Co.
724 North New Jersey Street
Mr. R. J. Illingworth

IOWA

DAVENPORT
Gierke-Robinson Co.
210-212 E. River St.
Mr. E. W. C. Gierke, Partner

KANSAS

WICHITA
Hill Electric Air Conditioning, Inc.
307 Lauro Street
Mr. H. Cengiz, Pres.

KENTUCKY

LOUISVILLE 4
Stewart Distributing Co.
1019 East Broadway
Mr. James G. Stewart, Owner

LOUISIANA

NEW ORLEANS 12
Equitable Equipment Co., Inc.
410 Camp Street
Mr. J. T. Knight, Jr.

SHREVEPORT

The Dykes Company, Inc.
1012 Market Street
Mr. O. J. Dykes, Jr., President

MARYLAND

BALTIMORE 15
Lloyd E. Mitchell, Inc.
4650 Reisterstown Road
Mr. W. P. Flanagan, Vice-Pres.

MASSACHUSETTS

BOSTON 10
Carlson Equipment Co.
10 High Street
Mr. E. E. Carlson, President

MICHIGAN

DETROIT 3
Temp-Matic Inc.
17320 Hamilton Avenue
Mr. H. Mobley, Gen'l. Mgr.

GRAND RAPIDS

Westinghouse Electric Supply Co.
511 Monroe St., N.W.
Mr. William F. Harper, Sales Mgr.

MINNESOTA

MINNEAPOLIS 6
Thomas & Thompson Air Cond., Inc.
2420 Riverside Avenue
Mr. Floyd M. Thompson, President

MISSISSIPPI

JACKSON
South Central Htg. & Plbg. Co.
2666 N. Main St.
Mr. Seymour R. Pooley, Owner

MISSOURI

KANSAS CITY 8
Nathan & Company
1924 Oak Street
Mr. Henry Gould, Vice-Pres.

ST. LOUIS 10

Nathan & Company
5555 Manchester Ave.
Mr. Carl Brueckert, Vice-Pres.

SPRINGFIELD

Paul Mueller Company
1616 W. Phelps
Mr. Paul Mueller, Pres.

NEBRASKA

OMAHA 5
Nathan & Company
4001 Leavenworth Street
Mr. Henry Kleinkauf, President

NEVADA

RENO
Savins Electrical Products Corp.
640 N. Sierra St., P.O. Box 531
Mr. Joe Bass, Executive Vice-President

NEW JERSEY

CAMDEN
Borsstein Electric Co.
415 Broadway
Mr. Isidor A. Borsstein, Owner

IRVINGTON

Gager Air Cond. & Refrig. Co., Inc.
1381 Springfield Ave.
Mr. Ralph Gager, Owner

NEW YORK

BUFFALO 3
Buffalo Electric Co., Inc.
75 W. Mohawk Street
Mr. Charles E. Schleifer, Vice-Pres.

JAMESTOWN

Sams Corporation
132 Blackstone Ave.
Mr. Marvin Friedman,
Mr. Air Cond. Dept.

NEW YORK 10

Times Appliance Co., Inc.
352 Fourth Avenue
Mr. C. J. Ward, Vice-President

ROCHESTER 9

Vanes & Gottscheier, Inc.
481 Webster Avenue
Mr. Robert E. Kuris, Sales-Service Eng.

SCHEMECTADY

Jon Ties Sales & Supply Co.
412 Warren St.
Mr. John Lapinich, Owner

NORTH CAROLINA

CHARLOTTE
Air Conditioning Equipment Co.
P.O. Box 4095
Mr. John J. Tillotson, Mgr.

WINSTON-SALEM

Wall-Turner Heating & Air Cond. Co.
487 S. Stratford Road
Mr. S. W. Turner, Eng. & Mgr.

OHIO

CINCINNATI 2
The Kuempel Co.
1000 Gilbert Avenue
Mr. Hal J. Jennings, Vice-President

CLEVELAND 15

Unit Air Conditioners, Inc.
2336 Prospect Avenue
Mr. Hyman H. Weiner

COLUMBUS 2

The Kuempel Company
2537 High Street
Mr. Leon Kuempel, Pres.

TOLEDO 4

Air Conditioning Distributors, Inc.
4322 Garrison Rd.
PO Box 123
Station H.
Mr. L. B. La France, Pres.

YOUNGSTOWN 3

Carlson Electric Company
121 E. Boardman Street
Mr. E. C. Carlson, Pres.

OKLAHOMA

OKLAHOMA CITY
Air Engineering Inc.
26 N. E. 26th St.
Mr. E. M. Howe

PENNSYLVANIA

ERIE
Lakes Engineering Company
1316 E. Daniel Baldwin Blvd.
Mr. Thomas P. Gannon, Partner

PHILADELPHIA 31

Raymond Rosen & Company, Inc.
Parkside & 51st Street
Mr. Wm. Realon, Builders Div. Mgr.

PITTSBURGH 1

Aircon & Heating Supply Co., Inc.
3811 Penn Avenue
Mr. Sanford Bousman, President

WILKES-BARRE

AirCo Distributing Company
20 South Washington Street
Mr. Louis L. Popky, Partner

SOUTH CAROLINA

COLUMBIA
Clark Heating & Plumbing Supply Co.
2700 Commerce Drive
Mr. Joseph W. Clark, Sr., Owner

TENNESSEE

CHATTANOOGA
Lennon Co., Inc.
1516 E. Main St.
Box 3052

KNOXVILLE
Indoor Comfort Distributors Co.
520 Van Street
Mr. R. W. Bradley, Sales Mgr.

MEMPHIS 3
Associated Southern Industries
1161 Union Avenue
Mr. R. B. Buckingham, Mgr.

TEXAS

DALLAS
Tenn.-State Supply Co.
425 South Field
Mr. Ken Wallace, Mgr.

EL PASO
Fred A. Lankford
2601 E. Missouri St.
Mr. Frank A. Lankford, Pres.

FT. WORTH
General Engineering Corp.
1118 South Main St.
Mr. W. C. Weeden, Vice-Pres.

HOUSTON
Star Steel Supply Co.
9411 Almanza
Mr. Morris Perlman, Dist. Mgr.

JACKSONVILLE
Hillcamp Engineering Company
Alabama & Patton St.
P.O. Box 209
Mr. Alton Hillcamp, Owner

LUBBOCK
Homer G. Maxey & Co.
1611 Fourth Street
Mr. Lee Fields, Pres.

SAN ANGELO
Climate Engineering Company
2320 Sherwood Way
Mr. Kenneth Eschman, Owner

SAN ANTONIO
Byrne, Inc.
1626 E. Houston St.
Mr. Stanley H. Byrne, Pres.

UTAH

SALT LAKE CITY 1
Williams, Gritton & Wilde
294 Dooley Boulevard
Mr. R. C. Williams, Partner

VIRGINIA

NORFOLK
Stokley's Services, Inc.
4000 Colley Avenue
Mr. John M. Stokley, President

ROANOKE
Davis H. Elliot Co., Inc.
11-13 Naval Reserve Ave., S.E.
Mr. Davis H. Elliot, Pres.

WASHINGTON, D.C.
Combustionaire Corp.
409 Tenth St., S.W.
Mr. A. E. Beitzell, Vice-President

WASHINGTON

SPOKANE 4
Warren Little & Lund
W. 609 Second Avenue
Mr. F. J. Lund, Partner

WEST VIRGINIA
CHARLESTON
Thrush Refrigeration Co.
1012 Virginia St., E.
Mr. R. D. Thrush, Owner

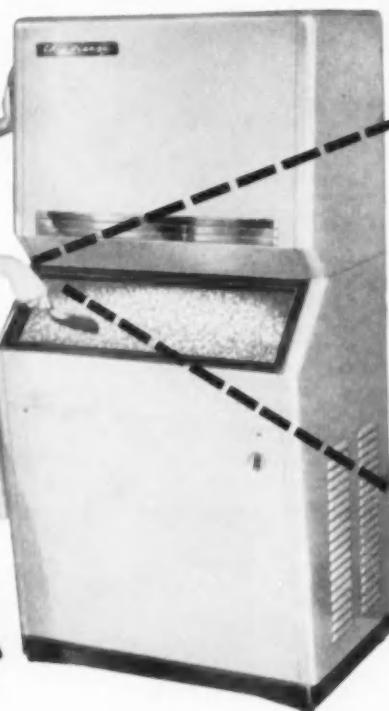
WISCONSIN

MILWAUKEE 7
Layton Supply Company
924 E. Russell Avenue
Mr. Howard B. Engles, President

YOU CAN BE SURE ... IF IT'S **Westinghouse**

**Crystallize your future TODAY
with an**

**EXCLUSIVE
FRANCHISE**



for
Chip-Freeze
AUTOMATIC ICE FLAKER

Here is the line of trouble-free ice-making equipment you've asked for . . . with new scientific innovations that will make sales history!

**NO
DEEP REACHING!**
Sparkling pure chipped ice is always at your
WAIST LEVEL!



MOST SANITARY UNIT MADE!

New ice is produced at TOP of the CHIP-FREEZE unit so that there is no possibility for accumulation or decay of old ice. As you draw ice from lower part of upper section of sanitary, stainless steel storage bin, new ice is then produced at the top of the storage bin. Most equipment today has ice storage section at bottom of unit; thus, scum and dirt formations in that section contaminate fresh ice easily.

6 EXCITING NEW COLORS!

Today, eye appeal is sales appeal! Choose from six new decorator colors to harmonize with any interior, anywhere, anywhere. Space-saving cabinet design in beautiful hi-bake enamel color schemes makes CHIP-FREEZE unit adaptable for any location!

SAVINGS—SAVINGS—SAVINGS

Save up to 95%! Imagine, 560 LBS. PER DAY—ice flakes for as little as 2¢ per bushel or 6¢ per hundred lbs. (depending on local power and water rates)! Pay only for the ice you need. Fills itself automatically as ice is used. Mechanism is easily accessible from front and rear. Machine turns itself on and off.

EYE APPEAL, SALES APPEAL, ICE APPEAL for:

- Supermarkets • Restaurants • Dairies
- Bakeries • Hotels • Fish and poultry markets
- Fresh produce markets • Florists • Hospitals
- Soda Fountains • Retail Stores • Clubs

COCORA Products
COLD CORPORATION OF AMERICA
Manufacturers of Ice Making Equipment
1371-89 N. North Branch St. • Chicago 22, Ill. • MI 2-6816

- Priced below competition! (Nationally advertised.)
- Fully automatic . . . (featuring new monostructure ice-making assembly.)
- Sales-tested selling plant . . . (We supply you with leads, too!)
- Maximum output guaranteed! (Ideal for any type of water system.)
- Low installation cost . . . as easy as "A-B-C" to maintain!

EXCLUSIVE PROTECTED TERRITORIES STILL AVAILABLE. Write, wire or call today!

COLD CORPORATION OF AMERICA

CRAC

1371-89 N. North Branch St.

Chicago 22, Illinois

Gentlemen:

I am interested in knowing more about "CHIP-FREEZE" automatic ice flakers.

Mfg. Rep. Distributor Dealer

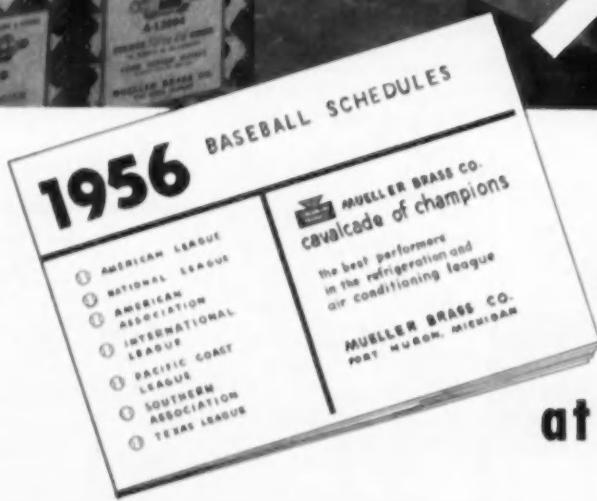
Others, please specify _____

Name _____

Firm _____

Address _____ Phone _____

City _____ Zone _____ State _____



get your free
sports schedule
for 1956
at your wholesaler's

Circle No. 32 on Reader Service Card



see the
**cavalcade of
champions**

now on display at
your wholesaler's

**MUELLER
BRASS CO.**

PRODUCTS

the best performers
in the refrigeration and
air-conditioning league



FLARE FITTINGS



PACKED LINE VALVES



STREAMLINE SOLDER-
TYPE FITTINGS



LIQUID INDICATORS



DRIERS-STRAINERS



DIAPHRAGM
LINE VALVES



COPPER
TUBE

MUELLER BRASS CO.

P O R T H U R O N 10, M I C H I G A N

Where
ultra-quiet
operation,
dependable
performance
and fine
appearance
are important... check

Modine *Airditioners* *



COOL, HEAT, VENTILATE

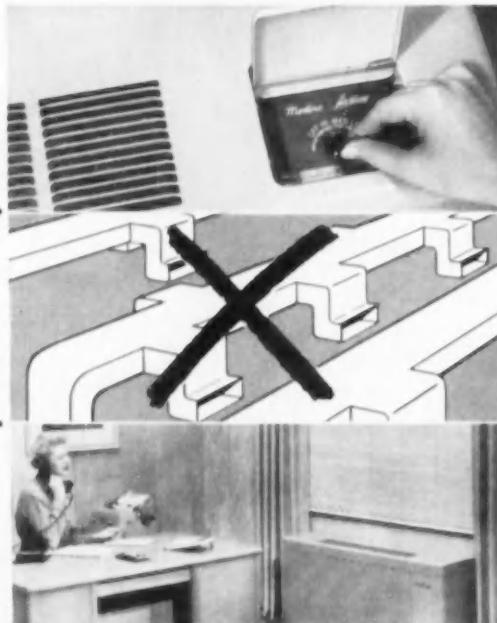
Whether you're planning to build or remodel, Modine Airditioners are designed for year 'round heating, ventilating and air conditioning. Individual controls keep room occupants comfortable, satisfied... save owners money on fuel costs. Ultra-quiet, resiliently suspended motors and fans (1050 rpm) meet the most exacting noise-level requirements.

ELIMINATE EXPENSIVE DUCT WORK

Modine Airditioners combine the best of central and unit type systems. They heat with hot water from a central boiler, cool with cold water from a central chiller. Same piping — water supply and return plus drain — is used for both. Operation of fan ventilates rooms during intermediate seasons.

IN STYLES AND SIZE FOR EVERY NEED

Sleek, modern lines add dignity and decor to any design motif... enhance livability of hotel, motel, office, apartment or home. Four distinct types to choose from — ceiling, overhead, concealed and console models — all styled by Jean Otis Reinecke.



A-1296 A



**NEW, FREE BULLETIN
DETAILS ADVANTAGES**

Ask the Modine representative listed in your classified phone book for Bulletin No. 755. Or write —
MODINE MFG. CO., 1584 DoKeven Ave., Racine, Wis.

Modine *Airditioners* *

TRADEMARK

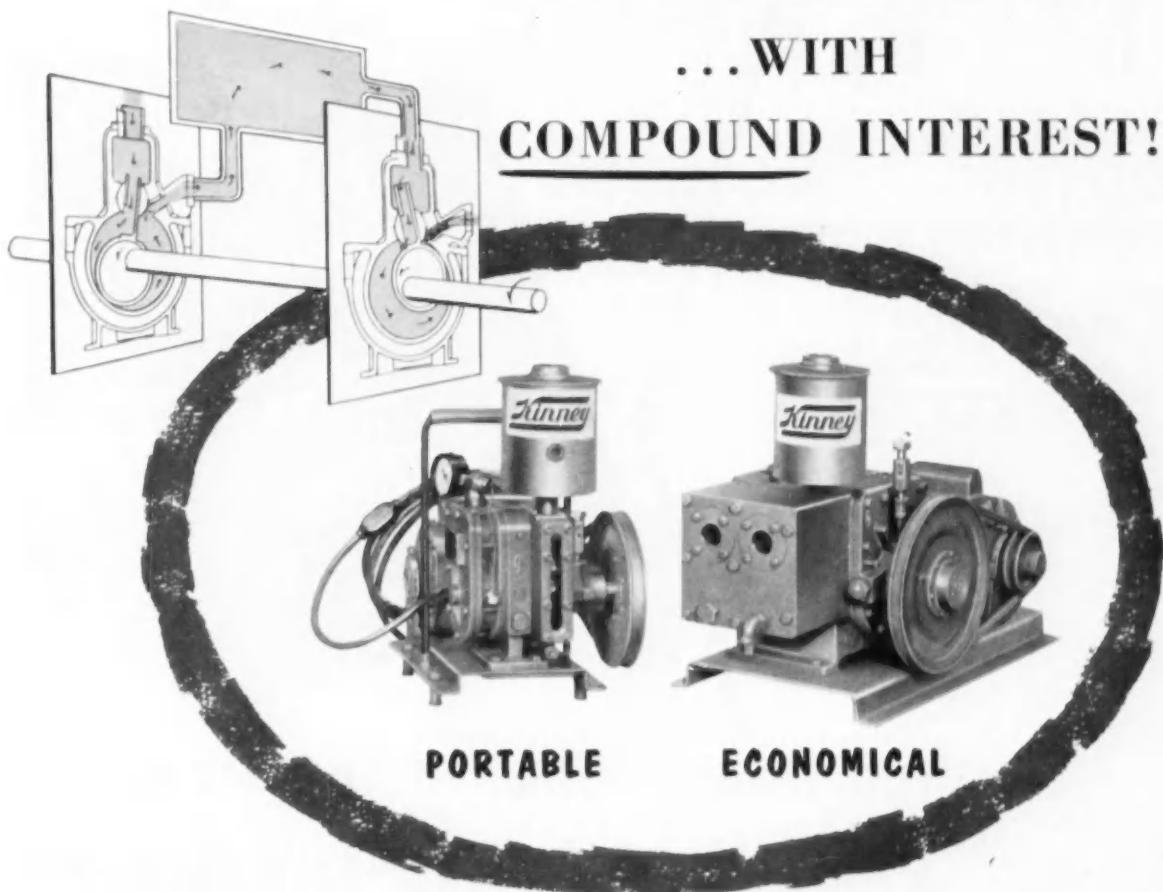
Circle No. 33 on Reader Service Card

APRIL, 1956 • COMMERCIAL REFRIGERATION

VACUUM PUMPING

... WITH

COMPOUND INTEREST!



KINNEY COMPOUND High Vacuum Pumps are specifically designed to maintain much lower pressures than single stage models are capable of . . . at fast pumping speeds and at very rapid recovery rates. Models KC-3R and KC-8R are ideally suited for industrial refrigeration and air conditioning installations . . . being portable, compact, easy to service, and extremely reliable.

The Model KC-3R has a free air displacement of 3.0 CFM, while the Model KC-8R is rated at 8.2 CFM. Other models offer displacements ranging from 2 CFM to 46 CFM. Diagram shows how the two pistons and pumping chambers are arranged in series . . . and how the connecting channel

within the cylinder serves as an oil supply chamber for the high vacuum side of pump—and also as an expansion chamber between the two stages. The high vacuum side is continually sealed from its own oil reservoir by vacuum purified oil . . . making cleaner vacuums . . . and since design eliminates any mechanical contact, years of continuous services without repairs is assured.

For more detailed data and pumping speed curves, request Bulletin 403 . . . or contact one of our competently staffed district offices in Baltimore, Chicago (La Grange), Cleveland, Los Angeles, New York, Philadelphia, San Francisco, and St. Louis.



KINNEY MFG. DIVISION
THE NEW YORK AIR BRAKE COMPANY

3610 WASHINGTON STREET • BOSTON 30 • MASS.
INTERNATIONAL SALES OFFICE, 90 WEST ST., NEW YORK 4, N.Y.



- PLEASE SEND BULLETIN 403 describing the Kinney line of air-cooled compound pumps.

Our vacuum problem involves

Name _____
Company _____
Street _____
City _____ State _____

Circle No. 34 on Reader Service Card

*Another
history
making*
KRAMER
manual



full information of the NEW

KRAMER L THERMOBANK

An exhaustive and fully documented manual
of automatic defrosting for temperatures
from plus 32° to minus 75°—complete with
rapid selection tables.

RESERVE your copy of Manual TV-320 now!



KRAMER

KRAMER TRENTON COMPANY
Trenton 5, New Jersey

Circle No. 35 on Reader Service Card

APRIL, 1956 • COMMERCIAL REFRIGERATION

The most powerful sales-clincher ever devised



custom made for the
man who says...
"I can't afford
new refrigeration"

It's easy to convince your prospects they *need* new refrigeration . . . but it's another thing to sell them when they don't have the down payment and can't see how they can accumulate the monthly payments. That's where a METER-MATIC coin meter will step in and *close the sale*.

Your customer puts just a few quarters a day in the coin meter . . . right from the till the way he's accustomed to pay his other suppliers . . . and he's got his refrigeration, and you've got your customers. You can sell safely with no money down, except the installation charge.

GET THE COMPLETE STORY

- FULL DETAILS . . . Specifications, prices, etc.
- METER PLAN BROCHURE . . . to help you sell
- FREE SELF-MAILERS . . . for mailing to prospects

MAIL THIS COUPON NOW!

METER-MATIC

COIN METER
REFRIGERATION SALES PLAN

INTERNATIONAL REGISTER COMPANY

2622 W. Washington Blvd., Chicago 12, Illinois

Please send me Meter-Matic Sales Kit No. 46 Mm. Be sure to include a free supply of 25 self-mailers for mailing to my prospects.

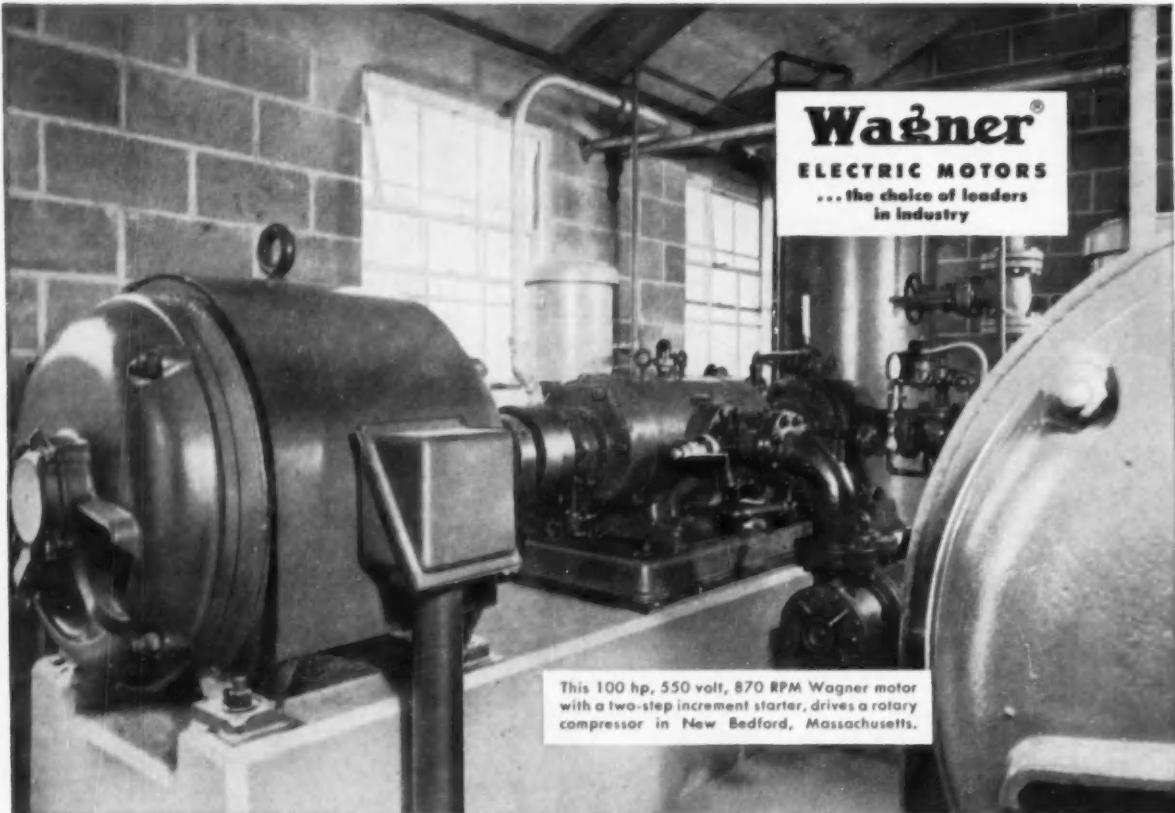
Company _____

My Name _____

Address _____

City _____

Zone _____ State _____



Wagner®

ELECTRIC MOTORS

...the choice of leaders
in industry

Start large polyphase motors with minimum line voltage disturbance

USE THE Wagner INCREMENT MOTOR

AND STARTER COMBINATION

Here's a modern, economical, highly efficient way to start large polyphase motors—the Wagner Increment Motor and Starter "Package."

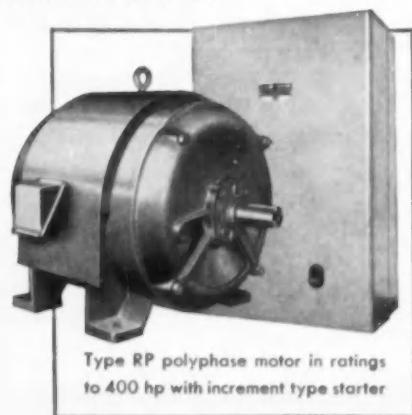
By reducing current drawn from the line on each point of the starter, the combination limits the inrush of motor current to values that are acceptable for the distribution systems of most power companies.

Voltage disturbances on the line are reduced because current taken from the line is not broken during the starting period—as it is when auto-

transformers or compensator type starters are used.

Wagner two-step increment motor and starter combinations are suitable for most applications. For installations where unusually low inrush of starting current is desired, Wagner can furnish three-step and four-step increment starters.

Your nearby Wagner engineer will help you select the increment motor and starter combination that meets your requirement. Call the nearest of our 32 branch offices, or write us.



Type RP polyphase motor in ratings to 400 hp with increment type starter



Wagner Electric Corporation

6442 Plymouth Ave., St. Louis 14, Mo., U.S.A.

MS5-16

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE BRAKE SYSTEMS-AIR AND HYDRAULIC
Circle No. 37 on Reader Service Card



**"It's great to be a
Carrier dealer—with
certified-capacity
Icemakers and
Flakemasters to sell!"**



Talking capacity is one thing. Certifying it is quite another.

With Carrier Icemakers and Flakemasters, you make no vague promises, no weasel worded statements like "up to so many pounds of ice per day."

With Carrier you have accurate field-tested capacities to work with. Even better, these capacities are *certified in writing*!

There's a Capacity Certificate to cover every

model, every operating condition. And Carrier stands squarely behind them all!

Even without certified capacity, you have it made. For no other line of automatic ice machines gives you eleven different models with features like these to sell: Icemakers that turn out cubes plus three grades of crushed ice—with jet action cleaning. And Flakemasters with simplified operation for making flaked ice that is hard and dry.



It's time to call your Carrier Distributor. He is listed in the Classified Telephone Directory. Or write Carrier Corporation, Syracuse, New York.

Carrier

automatic ice machines

'all around air conditioning' in Hollywood



Reprint from the
Financial page
LOS ANGELES
HERALD & EXPRESS

Capitol Records Bldg.

Welton Becket & Associates, Architects
Western Air and Refrigeration, Inc.
Air Conditioning Contractors



Zone Air

AIR HANDLING UNITS

supply "year 'round comfort"
for UNIQUE, CIRCULAR
CAPITOL RECORDS BUILDING

Write for Information

A. H. WITT COMPANY

940 N. Sycamore Ave.
LOS ANGELES 38, CALIF.

WITT
ONE OF A
FINE LINE OF
Coils

Circular Building

Solve Air Control Problems

By ANTHONY GENTLE

Assistant Financial Editor

Unorthodox designs of new buildings oftentimes are a problem and a challenge to subcontractors.

For instance: Air conditioning and heating of the 13-story circular building of the Capitol Records Corp., near Hollywood and Vine.

This unique 13-story round tower, standing on a rectangular base, was designed by the noted architectural firm of Welton Becket and Associates. It has attracted wide attention.

The problem was how to circulate air in a round tower without drafts or too uneven a temperature change.

HOW IT WAS DONE

And here's how it was done, according to A. H. Witt, head of the Los Angeles air conditioning, refrigeration and coil equipment manufacturing firm.

Engineers went to work and came up with as nice a solution as could be.

First the heavy equipment, the air conditioning machinery, was installed on the Capitol Records penthouse roof for easy accessibility.

Then approximately 100 Witt air conditioner units were installed throughout the 13 levels—all of them suspended from the ceiling around the outside perimeters of each floor.

Each air conditioner has two coils. Water from the hot water system is circulated through one coil during the winter months when heat is required.

And for cool, comfortable air during the hot summer months, chilled water is circulated through the other coil. Simple, isn't it?

PLENTY OF KNOW-HOW

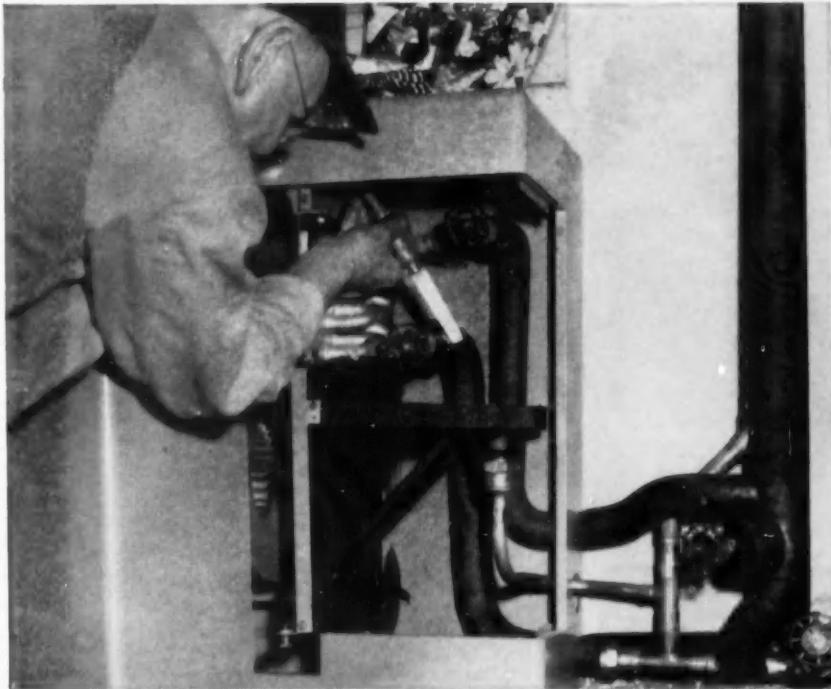
However, plenty of engineering know-how and weeks of figuring went into the project.

Placement, size and capacity of each unit was carefully worked out, according to Witt. Inasmuch as the odd but practical construction has a 78 foot diameter second level with all other levels 60 feet in diameter.

Air cooling and heating requirements of such services as elevators, stairways, duct shafts, janitor and storage space, placed in a central core, had also to be considered.

Witt Co. sales have greatly increased in the past year, Witt said, particularly for air cooled condensers and individual room unit air conditioners.

In recent months, Witt points with pride, 200 room air conditioners have been installed in the deluxe "Dunes" at Las Vegas. And several hundred units are at present going into the \$5 million "La Fonda garden apartment project in Houston, Texas.



Neat and easy to apply, Armaflex can be slipped on pipes in one simple operation. If lines are already installed, slit Armaflex lengthwise, snap in place and seal with Armstrong 520 Adhesive.

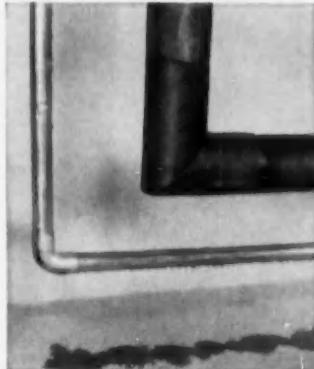
New insulation for liquid cooling lines stops dangerous condensation

Stop condensation on liquid cooling lines positively and lastingly with Armstrong Armaflex*, a new, flexible pipe insulation.

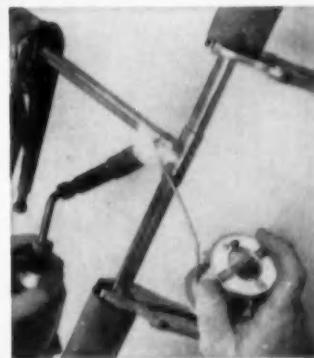
Closed cellular structure and vapor-proof composition completely seal out air and moisture. No separate vapor barrier is needed. Insulating efficiency stays high because Armaflex stays dry. Great flexibility makes Armaflex remarkably easy to install. It can be slipped over pipes and tubing, following contours without cutting or fitting; or slit and snapped over pipes. The only sundry used is Armstrong 520 Ad-

hesive for cementing joints. Fittings can be insulated with miter-cut covers. Armaflex is clean to work with. It will not rub off, crumble, or chip. There's practically no waste. Self-extinguishing feature allows fittings to be sweated with Armaflex on lines.

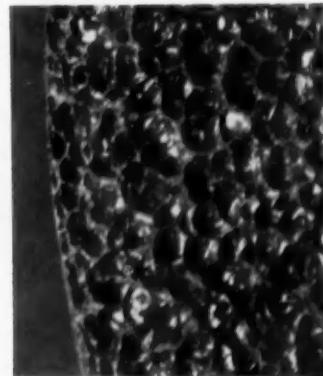
Armaflex comes in 6' lengths, for pipes and tubing to 3½" i.d. It can be used on lines operating from 32° to 200° F. Free booklet with all details sent to you on request. Write for "Armstrong Armaflex, a Flexible Pipe Insulation," to Armstrong Cork Company, 2004 Rumford Ave., Lancaster, Penna.



No condensation under normal design conditions on indoor lines operating as low as 32° F., when you use ½" thick Armaflex. Vaporproof composition keeps material positively dry.



Self-extinguishing Armaflex can be installed on copper tubing, held back with clamps while fittings are being sweated, then slipped into place.



Completely vaporproof, Armaflex is made up of uniformly sized foamed plastic cells that seal out moisture and air, give Armaflex its low K-factor of 0.28 at 75° mean temperature.

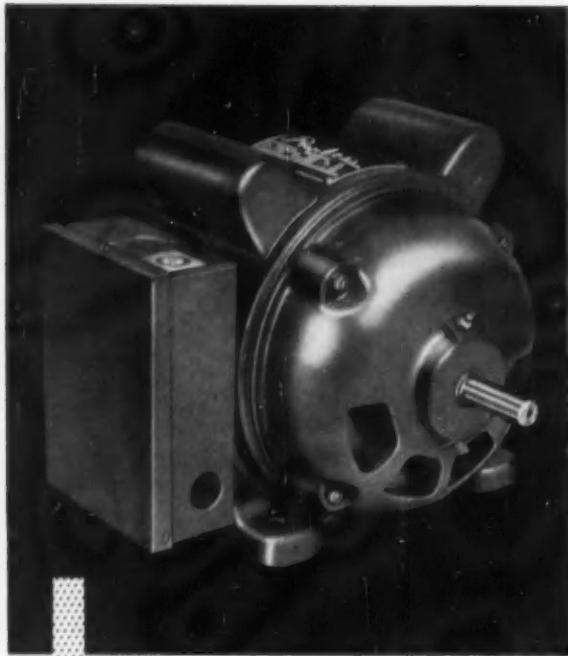
Armstrong

INDUSTRIAL INSULATIONS

*TRADE-MARK

& AIR CONDITIONING • APRIL, 1956

Circle No. 40 on Reader Service Card



**Newest
Accepted Design
in Refrigeration
Duty Motors**

● This trouble-free motor starts and runs refrigeration compressors under the most severe conditions. It has just three parts which wear because of motion or electrical contact — the bearings; contact points on the stationary part of the switch; and the centrifugal parts of the switch. Excellent design holds wear on these parts to a minimum. Servicing is practically eliminated. Motors are Underwriters' approved.

Write for Peerless Refrigeration Motor Bulletin. It shows recommended wire sizes, construction features and answers those questions asked most often by men who service and distribute refrigeration duty motors. It shows you how motor service and maintenance can be held to a minimum.

ELECTRIC MOTOR DIVISION
THE *Peerless-Electric* COMPANY

FANS · BLOWERS · ELECTRIC MOTORS · ELECTRONIC EQUIPMENT
WARREN, OHIO

Circle No. 42 on Reader Service Card

48

**NEW
UNIFLOW WATER
COOLERS . . .**

NOW IN BEAUTIFUL PEARLTONE
GREY WITH YOUR CHOICE OF 6 TOPS
COLOR KEYED TO
YOUR PROSPECT!



**EYE APPEALING
COLORS.. AT NO
EXTRA COST!**



Featuring **FOOT PEDAL
CONTROL**

**FREE Full COLOR
BROCHURE . . .** of the
new **COMPLETE** line of
Uniflow Water Coolers.



UNIFLOW . . . a pioneer builder of water coolers
for over 24 years . . .

**UNIFLOW MANUFACTURING COMPANY
EAST LAKE ROAD, ERIE, PENNSYLVANIA**

Circle No. 41 on Reader Service Card
APRIL, 1956 • COMMERCIAL REFRIGERATION



AIR CONDITIONED TRIPOD

**Texas Tower radar "Island" keeps cool with
AIRTEMP Air Conditioning**

Under a blazing summer sun, this off-shore air defense Texas Tower radar "island" could literally cook the Air Force crews that man it. But not with Airtemp air conditioning on the job!

Cool, clean, healthful air, provided by packaged chiller units, helps keep radar crews alert...helps precision radar stay accurate. Thus, men and equipment alike perform efficiently in this vital link of our early warning network.

It's unusual air conditioning to be sure, but just a routine application for top engineers of Airtemp Construction

Corporation. As air conditioning specialists, these men provide efficient systems for buildings, offices and stores of every kind.

Their experience, plus years-ahead engineering by Chrysler, assures dependable, trouble-free air conditioning through the years.

When you specify Airtemp, you help clients cut operating costs, attract new business, increase profit dollars. Let your Airtemp distributor give you the facts. Or, write: Airtemp Construction Corp., Dept. CR-4-56, Dayton 1, Ohio.

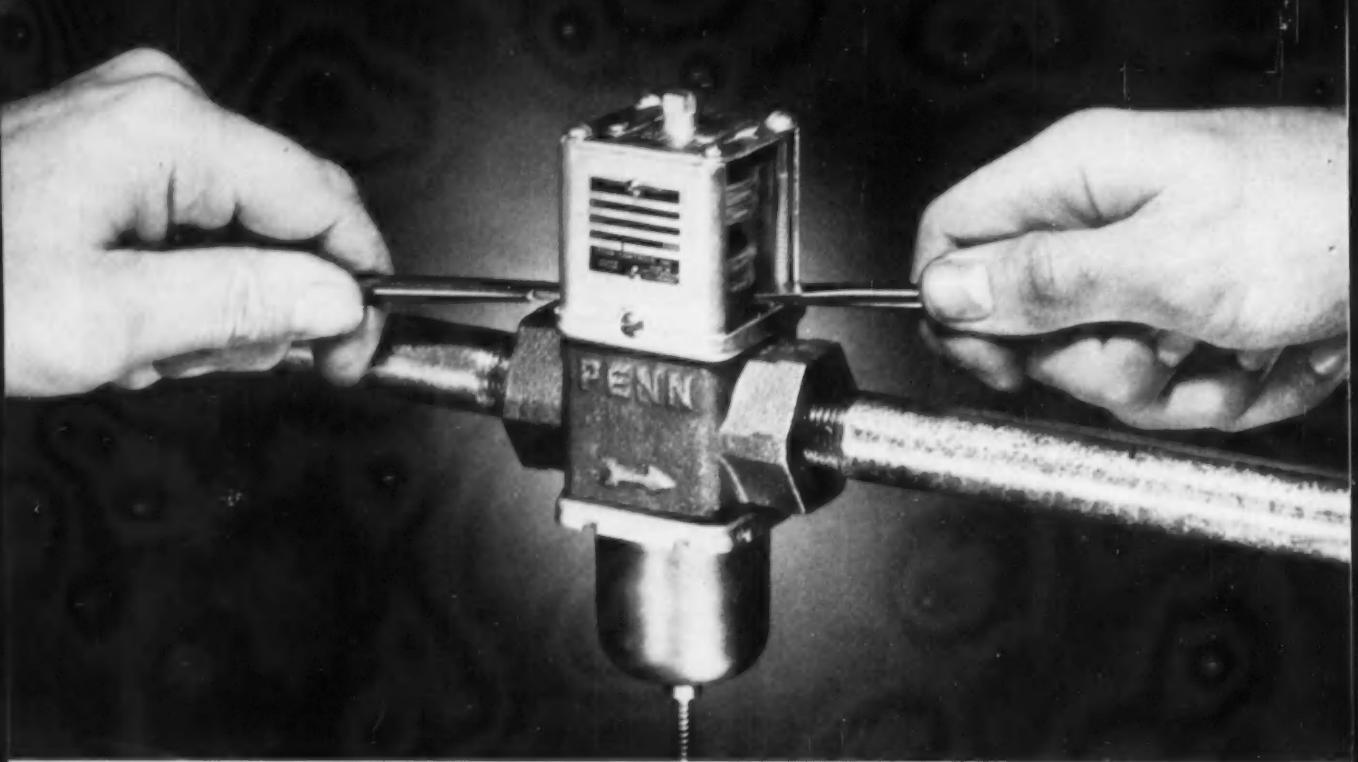
Circle No. 43 on Reader Service Card

& AIR CONDITIONING • APRIL, 1956

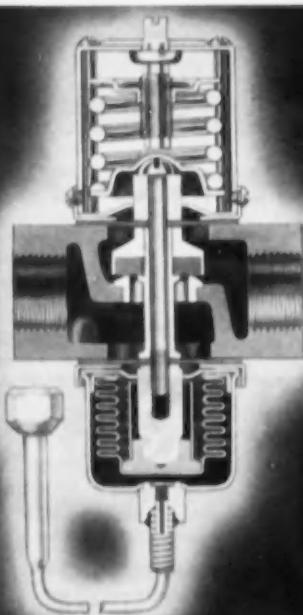
Airtemp
CONSTRUCTION
CORPORATION

SUBSIDIARY OF CHRYSLER CORP.

**AIRTEMP BUILDS
AIR CONDITIONING
TO MEET
EVERY REQUIREMENT**



SEE HOW EASY IT IS TO FLUSH PENN WATER VALVES



Cutaway view shows how 2 nylon-reinforced synthetic diaphragms keep water away from the bellows, range spring and sliding parts. Penn puts an end to rust, corrosion and sedimentation, the deadly enemies of ordinary water valves.

2 screw drivers, a flip of the wrists—and PENN is ready for long, trouble-free service

Only Penn water valves offer such easy manual flushing! And, you know how important it is to flush out any newly-installed water valve. With Penn, all you do is insert two screw driver blades under the range spring and lift up. All the pipe cuttings, solder balls, rocks and other foreign material that normally get into the water lines during installation are washed away. Easy-to-flush, Penn eliminates those costly service call-backs due to improper valve seating.

That's just part of the story. Penn water valves are highly sensitive to changes in refrigerant head pressures, assuring top efficiency. There's no valve chatter, no water hammer, no rusting of range spring, no corrosion of sliding parts. Sizes from $\frac{3}{8}$ " to $2\frac{1}{2}$ " in flanged or threaded styles—and also available for temperature actuated service. Ask your wholesaler.

PENN CONTROLS, INC. Goshen, Indiana

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES,
PUMPS, AIR COMPRESSORS, ENGINES

B&H'S

TRENDS·OPINIONS·REPORTS

ARI HAS PUBLISHED Interim Standard 620-56 "Published Ratings for Residential Air Conditioners" which defines the method of arriving at published ratings for these types of units. The standard outlines for four types of residential air conditioning equipment to which it applies, and states that cooling capacity ratings shall be based on tests conducted in accordance with ASRE Standard 16-56 to include total cooling capacity rating stated in Btu per hour at the ASRE standard rating conditions as applied to both water-cooled and air-cooled units. The standard does not apply to room air conditioners and heat pumps. Copies are available at 25 cents each from ARI headquarters.

COST OF ALL-YEAR COMFORT, now being determined in a nationwide test, will run close to a target figure of \$10 a month, according to the first progress report issued by the test sponsor. Houses of average size—1,200 sq. ft. of air conditioned floor area—submitted so far for study from 11 cities ranging from Minneapolis on the north to Jacksonville and Phoenix on the south, indicate a predicted annual fuel and power cost of \$125.63 against the test target of \$120. Cooling costs for the first 10 candidate houses in southern cities were predicted to average \$99.73 for a typical cooling season. Eight houses studied in central cities showed predicted heating costs averaging \$78.84 and cooling costs averaging \$48.46, for an all-year average of \$127.30. All these figures incorporate savings resulting from proper insulation, ventilation, shading and correct orientation of window areas. About 125 houses will be included in the complete study, and a two-year occupancy study will be made.

USING THE SUN'S HEAT to supplement electricity in air-type heat pump systems is a possibility with equipment recently developed. The new solar-energy collector, worked out cooperatively by scientists of USDA and the Kansas Agricultural and Engineering Experiment Stations, is expected to make heat pump heating for houses more economical. The device catches solar rays and transmits them to the air underneath, sometimes raising the temperature as much as 13 F. A fan draws the air over the heat pump evaporator. The heat is picked up and transmitted to the air circulating in the building. The collector consists of a sheet of galvanized corrugated metal roofing, painted black to increase its heat-absorbing capacity, and used as part of a roof or wall section. A 600-sq. ft. collector—the size of a roof or south wall area on an average home—may provide enough heat on a typical Kansas winter day to cut a heat pump's electrical needs by about one-fourth during daylight hours.

EVEN THE DOGS will be kept in air conditioned surroundings on two new luxury liners now being constructed for Moore-McCormack Lines by Ingalls Shipbuilding Corp. The liner will have a passenger capacity of 553 each, all in first class. All passenger and crew space will be air conditioned—including all staterooms, public spaces, beauty shop, gymnasium, and even the dog kennel. Each stateroom will have an individual thermostat, and perforated ceilings for draftless air distribution. The firm of S. W. Brown has been engaged as consultants for the air conditioning of the two liners. They will be ready for use late in 1957.

IN GOOD SHAPE for the 1956 merchandising season was the verdict of members of the Room Air Conditioner Section of ARI at a recent meeting at which last year's results were reviewed and this year's prospects discussed. More than 1,300,000 units were sold at the consumer level in 1955, an increase of more than 30% over the previous year. Inventory in the hands of manufacturers and distributors on Dec. 31, 1955, was reported as 49% less than a year ago. January shipments by manufacturers were up 38% and distributor shipments were up 23%, while distributor inventory was considerably lower than at the same time a year ago. ARI consensus was that retail room air conditioner sales are starting to build up earlier this year than in the past.



ENTRANCES to two of the eight food and beverage dispensing stations in the Newark (N.J.) Drive-In Theater are shown here. Speed and efficiency are paramount in these facilities which are designed to handle peak loads imposed by the theater's maximum capacity of 10,000 persons.



Food Service FOR THE DRIVE-IN THEATER

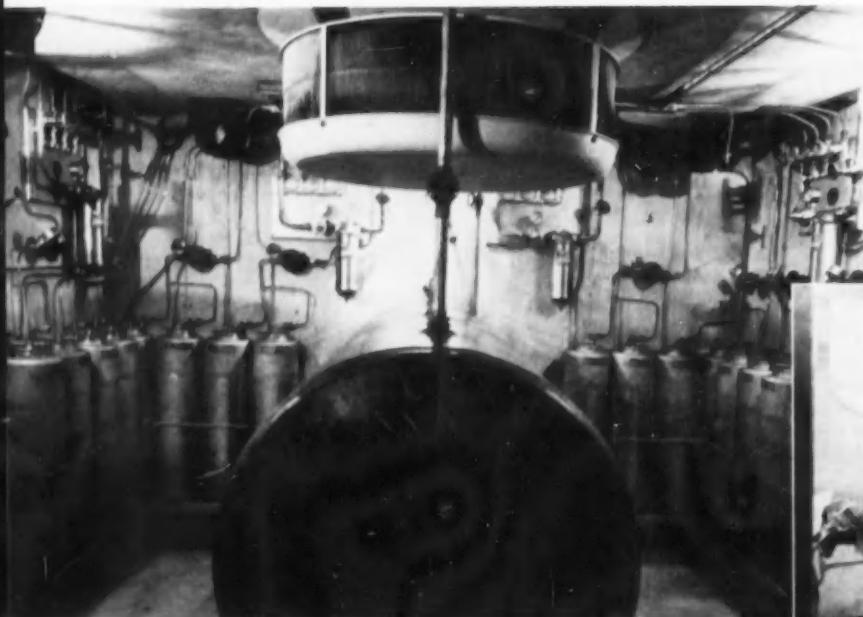
*... an expanding market
for the commercial
refrigeration
dealer*

IN the world's largest drive-in theater, the refrigeration of food and beverages is almost as important as the equipment for projecting motion pictures on the giant screen.

But what is true of the world's largest—the Newark Drive-In at Newark, N.J.—is equally applicable to other enterprises of similar type, regardless of their size or location.

In the Newark set-up there are accommodations for 2,000 cars, which means an attendance potential up to 10,000 persons. But in any drive-in theater, the serving of food and beverages requires equipment designed for efficiency, with plenty of emphasis on refrigeration.

Patrons of a drive-in begin to arrive about half an hour before the first program begins, and many of them want a "snack" almost immediately. Late arrivals continue the "food-first" procedure. Then there is a tremendous rush on the refreshment facilities be-



HEART OF THE SYSTEM which provides refrigeration for the theater's beverage service facilities is this insulated pre-chill room in the basement of the refreshment building. Large tank in the center holds water; small tanks contain syrups. Lines from these tanks to dispensing stations pass through ducts cooled by air blown from the pre-chill room.



tween shows. Lastly, there's a final rush by those who want food, drinks, or ice cream cones to consume while they are riding home.

To take care of thirsts and appetites, the Newark Drive-In—one of the Redstone chain of theaters—has an exceptionally efficient installation in which the refrigeration components were installed by Simard, Inc., of Lynn, Mass.

Eight Serving Stations

In a one-story building there are eight serving stations radiating outward from a center like the points of a star. At each station there are four fountain faucets. Two of them mix orange syrup and water; the other two mix grape syrup and water. There is milk in paper containers, displayed in an open ice tray. An ice cream cabinet is also at each of the stations. Sandwiches and cooked foods are prepared at a station in the center.

It is behind the scenes, however, where the principal refrigeration is required.

Insulated Pre-Chiller

Highlight of the refrigeration in this installation is an insulated room in the center of the basement. Here, the syrups and water are pre-chilled by chilling the entire room area to 35 F.

A 250-gallon water tank is located in the center of the floor. Sixteen syrup containers, under pressure, are located around the room's walls.

Pipes to move the water and syrups to the fountain faucets are positioned in air ducts—one duct to each of the serving stations. There is a separate blower for each duct, located in the chilling room, and there are two concentric sections in each duct.

In one section, containing all of the pipes, the chilled air is blown from the chiller room to a point near the faucets where the air reverses direction and returns in the other section back to the room. In such manner, a 35 F tem-

LOOKING FOR NEW PROSPECTS?

"Movies Are Better than Ever"



FASTEST growing segment of the motion picture business is the drive-in theater field. Industry sources report that the number of drive-in theaters in the United States has risen from a meager 1800 at the close of World War 2 to a total of between 6000 and 7000 today. Since 1945 between 350 and 500 new units have sprung up each year, and future trends indicate no slacking off.

What does all this mean to the commercial refrigeration dealer? It means that here's a growing and receptive market for his products, for every new drive-in theater that opens for business uses some type of food or beverage service equipment. The small "cow pasture" type of unit may only buy a bottled beverage cooler or two, but many of the larger, more modern drive-ins install as much food and beverage service equipment as the average restaurant.

In these latter cases, the profits derived from the refreshment end of the business, according to responsible industry statements, frequently equal or exceed the profits from admissions. This makes food and beverage service *big business* for the drive-in theater. By the same token, it makes drive-in theaters *big business* for the commercial refrigeration dealer.

perature is maintained all the way from storage almost to the faucets. The ducts are from 10 to 20' long. They are covered with 2" preformed insulation.

Chilling of the water-syrup room is accomplished by an independent refrigeration unit using a 1-hp air-cooled motor-compressor. The room itself has insulation of 4" thickness. The evaporator coil is of a circular shape located at the center of the ceiling. It has a built-in blower. No additional chilling of water and syrups is required beyond the end of the ducts.

Elsewhere in the basement there is a two-door zero refrigerator for temporary storage of meat, pizza pies, milk and cream. It has a built-in refrigeration unit.

Also, there is a basement-located walk-in. It is about 10 x 20' and is served by a 1½-hp unit, and has 4" insulation on walls and ceiling. The walk-in temperature is maintained at 35 F.

Nearby are two ice-cube makers, each with a capacity of 1050

pounds in 24 hours operation. They discharge into a 1-ton bin. Each ice machine has a 1-hp water-cooled condensing unit.

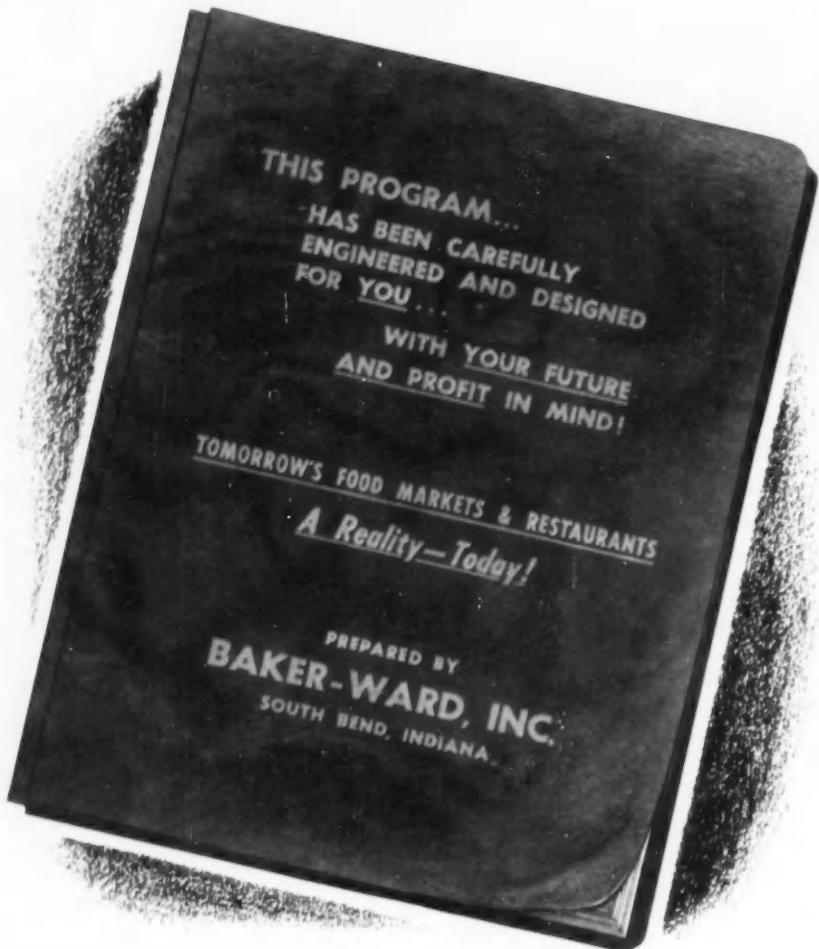
Ice from the bin is loaded into eight stainless steel insulated carts for transportation to the first-floor serving stations. There the ice is dispensed directly from the carts which fit into counter spaces. Each cart holds approximately 8 cu.ft. of cubes.

The eight ice cream cabinets in the serving area are of 5' size, and have self-contained refrigeration units.

The principle of concentric air ducts to carry the water and syrup pipes while circulating chilled air upon them has been used by the Simard company for 19 years, and was originally designed for the storage and dispensing of beer.

Minimum man-power requirements and fast serving are achieved by the combination of refrigeration components in this drive-in theater and the local management describes it as "ideal."

YOU CAN JUDGE A BOOK BY ITS COVER



IN selling food service installations, perhaps more than in any other type of commercial refrigeration activity, the professional engineering approach to a job pays big dividends in terms of increased business volume. At least that has been the experience of Baker-Ward, Inc., commercial refrigeration distributor in South Bend, Ind.

Year after year Baker-Ward installs a substantial volume of food service equipment for schools, hotels, institutions, churches, industrial plants, restaurants, taverns, drive-ins, and similar establishments in the South Bend area, in addition to its basic business of planning and equipping food markets. And the firm has found that there's a definite difference between the two types of operations.

Al Pulaski, who heads up this distributor's food service equipment sales, puts it this way:

"In selling the food service field you are dealing with many different types of customers, in contrast to the food retailing field where the customers all are engaged in the same basic type of operation and vary only in size. Each different class of customer for food service facilities has its own special problems and must be handled in a somewhat different way.

"The only common denominator seems to be that in all food service work each job is different and much of the equipment must be tailor-made to fit the individual requirements of each particular installation. Therefore an attitude of professional competence, as opposed to one of high-pressure mer-

PROFESSIONAL appearance of the cover of the job proposal folder submitted by this commercial refrigeration distributor on each food service installation planned is borne out by the detailed plans and specifications contained within.

chandising, is almost sure to place any type of food service prospect in a receptive mood.

"For these reasons, the man who makes a point of being an equipment specialist rather than an equipment peddler, and who approaches each job with the attitude that it must be carefully engineered in a thoroughly professional manner, is bound to get somewhat more than his share of the available business.

"The time to start creating this impression," Pulaski emphasizes, "is during the very first contact with the prospective customer.

From that point on, every effort should be made to heighten and intensify this impression until the prospect is thoroughly sold on the idea that here is a firm which not only recognizes his particular problems but is prepared and equipped to provide a satisfactory solution for them.

Proposal Is "Clincher"

"The 'clincher' in this carefully conducted merchandising program should be the job proposal itself. Here is where many firms fall down on the job. Submitting a bid or a job proposal jotted down on the back of an old envelope, or scrawled in handwriting even if on a business letterhead, will tend to immediately destroy in the mind of the prospect any impression of professional competence on the part of the salesman or the firm he represents which may have been built up in previous contacts.

"That's why we here at Baker-Ward go 'all out' to make our proposals do a real selling job."

Cover Tells a Story

In the first place, each proposal is bound in an attractive maroon colored report folder in which the individual sheets are held by three prong-type paper fasteners. On the semi-stiff cover of this folder is prominently printed in gold lettering the following sales message:

"This program has been carefully engineered and designed for you . . . with your future and profit in mind! Tomorrow's food markets and restaurants a reality—today! Prepared by Baker-Ward, Inc., South Bend, Indiana."

Inside this impressive covering the prospect finds a carefully typed proposal, together with all of the necessary plans and detail drawings. On bid jobs through any state or county organizations, a copy of the firm's financial report is included, as this usually is a requirement of such bids.

Service facilities of the firm also are heavily stressed in this proposal, to assure the prospect that here is a firm which cannot only capably design and install the

Continued on page 125



DESPITE POOR CONDITIONS for painting and drying, the ceiling of this refrigerated room at Hotel Roosevelt remains in excellent condition eight months after having been finished with an acrylic-emulsion paint.

Cure for Paint Peeling Problem?

PEELING and blistering of paint in refrigerated areas where food is stored presents an annoying and costly maintenance problem. Paint flakes can fall into the food and make the area untidy. If metal surfaces become exposed, due to flaking paint, they will corrode quickly.

The combination of high humidity and low temperature is one of the major causes of poor adhesion of paint in refrigerated and freezer areas, where relative humidity is 80 to 100% almost continuously. Most commonly-used synthetic-resin paints (such as the alkyd enamels and "rubber-base" water paints) cure as they dry. Thus, when drying is slowed down by high humidity or low temperatures, the strength and adhesion of the paint film is reduced. Furthermore, under moist conditions pockets of water form under the paint film, causing blistering and peeling.

These problems cropped up in the refrigerated and freezer storage rooms at the Hotel Roosevelt, New York. The hotel has five such rooms maintained at 0, 33, 37, 43 and 55 degrees F, respectively. These rooms have plaster ceilings, which formerly were painted with a white alkyd enamel for appearance and brightness.

Because these rooms supply the hotel's kitchens, when the time came for repainting, they could not be kept out of service long enough for the ceilings to dry adequately before the paint was applied or for the paint to dry completely afterwards. Usually the refrigeration equipment was shut off temporarily, the ceiling was painted, and—after a few hours to permit some drying—the room had to be returned to service.

As a result, the alkyd paint film dried and cured at a very slow rate. After three or four month's time, the freshly painted surface again began to peel.

Early this year, the hotel's maintenance department tried out a new type of paint in one of the refrigerated rooms in an attempt to get better paint performance under these difficult service conditions. The paint was a water-base paint, referred to as a "plastic coating," based on an acrylic emulsion.

The acrylic paint was applied on a moist surface under the same conditions as was the enamel, and is still intact except for a few spots. In those places, some peeling has occurred because the underlying

Continued on page 125



LOCATING THE UNIT atop the walk-in (left) solved a space problem in this Pfeiffer installation. Louvered panels match the refrigerator in color, and one louver is hinged for convenience in servicing. Pass-through reach-in (below) is another example of made-to-order cafeteria service application.



Like this eastern contractor,
you can open up new opportunities
for profit in the food service
field if you can furnish . . .

EQUIPMENT THAT'S "FIT" TO BE SOLD

PAYING special attention to the specialized food storage and service requirements of schools and other locations that need specially built refrigeration equipment can provide an important source of business volume and profit for the distributor or dealer who's willing and able to set his sales sights on this market.

Evidence at J. P. Pfeiffer & Son, Inc., Baltimore commercial refrigeration distributor, supports this statement. By devoting its merchandising attention largely to the built-to-specifications field among the diversity of food service equipment users in its sales area, Pfeiffer has been able to develop an impressive list of installations. And every installation successfully operating helps in similar jobs that come up afterwards.

The company maintains complete shop facilities for constructing this type of equipment, according to Jay

R. Pfeiffer, and handles the erection of the fabricated unit. All equipment is built to suit individual customer demands, and Pfeiffer does the job from the blueprint stage all the way through to supplying the lowside and highside equipment that makes the system run right.

The company has a number of interesting installations to its credit, and equally as interesting as the jobs themselves are the sales avenues they have made apparent.

For instance, the installation of a specially built walk-in unit at the Campfield Elementary School in Baltimore County indicates a sizeable potential in this field. In this area, as in many others throughout the country, increasing attention is being paid to improving food service facilities in elementary schools as

well as in those of higher grades. The company is capitalizing on its experience here to cultivate increased business from this source.

The Campfield school installation involves an aluminum lacquered walk-in refrigerator, 6' by 6', with 16-cu. ft. freezer compartment located at the rear of the normal temperature section. Water-cooled condensing unit is located in an attractive section on top of the walk-in.

Along with the walk-in, Pfeiffer also installed at the Campfield location a stainless steel pass-through salad refrigerator, also built to order. This unit is set in the partition between the kitchen and the service area. The refrigerator is a self-contained unit, and is equipped with slides that take an 18" x 26" tray.

Another interesting installation is the one made by Pfeiffer at Hutzler's Towson, a branch of Hutzler's department store of Baltimore. The branch is located in suburban Towson, Md. This installation is a pre-fabricated, three-compartment walk-in manufactured in Pfeiffer's plant. The unit is used in the restaurant kitchen that serves both customers of the store and the employee dining room.

Two normal temperature compartments are provided, one for produce, the other for meats. Behind the meat section is a low temperature compartment. The complete unit measures 20' x 6'6" x 10' high. Normal temperature sections are served by Bush blower coils and Brunner condensing units.

One of the unusual requirements in the construction of this particular unit was the customer's specification that there be no nail or screw marks anywhere on the liner surface. Pfeiffer solved this problem by using pliobond as an adhesive to fasten the stainless steel to a plywood base.

The three-compartment walk-in was the standout equipment item in the Hutzler Brothers Towson installation, but it wasn't the sum total of the Pfeiffer installation there. The store has as one of its specialties a very popular line of its own baked goods, and for the bakery at Towson, Pfeiffer supplied a 9 x 5 x 8 bakery refrigerator, and a separate bakery freezer.

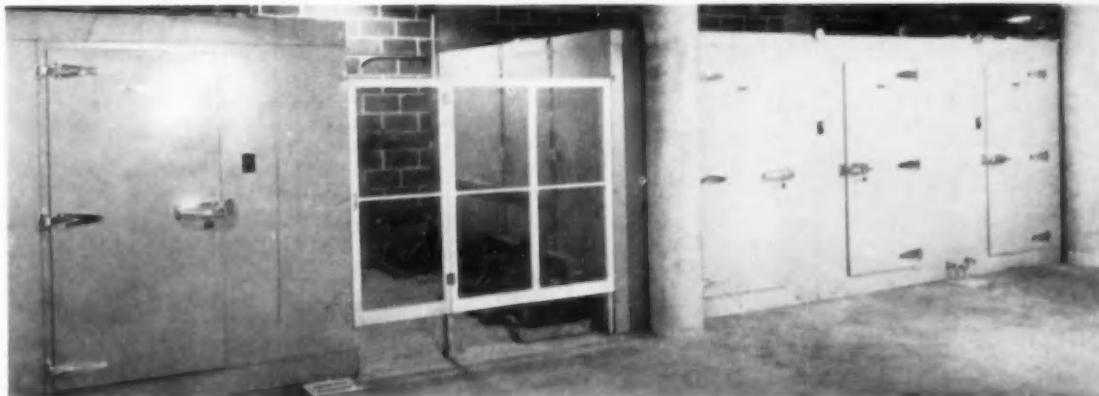
Continued on page 78



SPECIAL SERVICE equipment — the unit shown above is a vegetable preparation room — is supplied by Pfeiffer to restaurants and caterers. Built to order, these units can be located anywhere the customer specifies and fitted to his requirements.



NO SURFACE MARKS from screws or nails was a customer "must" in the Pfeiffer job shown above. Company solved this by bonding stainless steel panels to a plywood base. In the walk-in lineup pictured below are a freezer and three normal temperature rooms. Because of their location outside the food preparation area proper, these refrigerators were finished with a special paint to harmonize with surroundings, make cleaning easier.



"We protect our profit with American Vibration Eliminators,"

says Forrest E. Hershey, president Holbrook Refrigeration, Inc., Los Angeles



Service engineer Martin Newman of Holbrook Refrigeration, Inc., checks American VE's installed in telephone equipment building.

"Vibration Eliminators make good business sense," continues Mr. Hershey. "If a line fails due to vibration, the contractor stands to lose the cost of the refrigerant charge during his warranty period, plus the cost of repairs and the customer's good will.

"Five years ago we switched completely to American V.E.'s because we found them better engineered and more dependable than any other make. We've never suffered a failure or rupture due to poor design of an American . . . and *know* we can count on them to hold up under the pressures of the refrigerant charge."

You can use AMERICAN VE's with confidence because—

The right metal does the job. The special tin-bronze alloy—the result of American Brass metallurgical know-how—is tailored for the refrigeration and air conditioning industries.

Double braid where extra protection is needed. On all American VE's $2\frac{1}{8}$ " O.D. or larger.

Clean, dry, tested, protected. Snip the end of the vapor-proof polyethylene bag and you have a factory-fresh unit to install in the line . . . clean, inside and out!

Packaged for your convenience, protection. The new boxes are sturdy, easy to open, easy to identify. Insist on VE's with the stamping "American" on the ferrule . . . an Anaconda product.



NOW listed by
Underwriters' Laboratories
through sizes $3\frac{1}{8}$ " O.D.

For descriptive folder write: The American Brass Co., American Metal Hose Division, Waterbury 20, Conn. In Canada: The Canadian Fairbanks-Morse Co., Ltd.

WHEREVER CONNECTORS MUST MOVE

AMERICAN

For American Vibration Eliminators

see your **ANACONDA®** distributor

Circle No. 45 on Reader Service Card

APRIL, 1956 • COMMERCIAL REFRIGERATION



POINTING WITH PRIDE to the picture on the wall of his new restaurant, Gene Goldenberg, proprietor of The Mall Luncheonette, tells a customer how this photo of the installation (inset) was presented to him by O. A. Gruenewald, the dealer who sold him the equipment.

Photos He Says It With Flowers

YOUR a restaurant equipment dealer. One of your customers, whose establishment you have completely equipped, is opening his new place of business. So what do you do? You send a nice big basket of flowers, with a little card extending your congratulations.

The flowers promptly get lost in the profusion of floral arrangements from other suppliers and purveyors. A couple of days later the flowers are dead. Your card is in the wastebasket. And like as not your name is forgotten—forgotten, that is, until the first equipment trouble develops that necessitates a free service call!

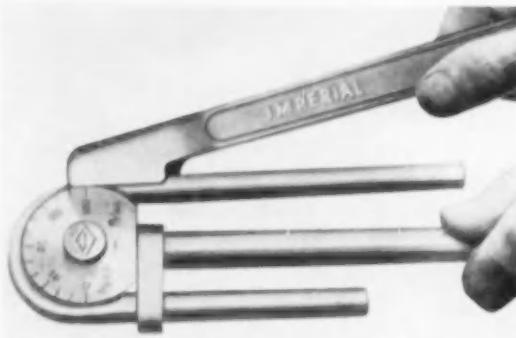
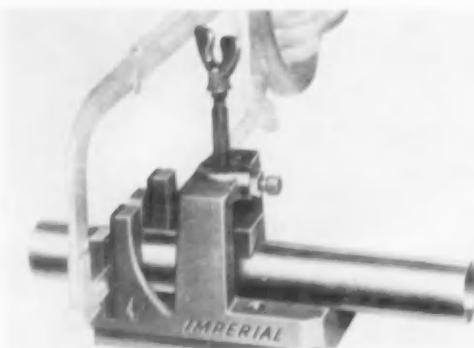
At least that's the usual pattern if you follow the long established custom in this business. But if you exercise a little ingenuity, chances are you can come with a more effective means of wishing your customer

well in his new operation. Otto A. Gruenewald did, and here's how his idea works:

Gruenewald is proprietor of Gruenewald's Specialized Equipment Service, Philadelphia, Pa., distributor of food service equipment. He had long felt that the common practice of sending flowers to bedeck the "grand opening" celebrations of his customers was pretty pointless. He determined, instead, to give them something they could really remember him by.

So now, whenever his firm completes a new food service installation, Gruenewald tells the owner that he will send a commercial photographer around to take pictures of the place when it's all spruced up for opening day. He makes it clear, of course, that some of these photos will be given to the owner as a memento of his progress in the business world.

Continued on page 78



CUTTING (top) — Sawing vises clamp the tubing without flattening it. The saw is guided in a slot to insure a square cut.

BENDING (bottom) — New improved lever-type benders will bend stainless steel tubing with minimum deformation. No clamp is needed for this operation.



DEBURRING (top) — Stainless steel beverage tubing can be deburred with standard inside-outside reamer (shown) or a file.

FLARING (bottom) — Tubing of this type can be readily flared with flaring tool. Tools for both 45 and 37-degree flare are available for this purpose.

Tips on using stainless steel tubing for BEVERAGE SERVICE APPLICATIONS

MAXIMUM WORKING PRESSURES FOR STAINLESS STEEL BEVERAGE SERVICE TUBING (pounds per square inch)

Standard Size Range OD	WALL THICKNESS				
	.020"	.025"	.028"	.032"	.035"
1/4"	2,400	3,000	3,360	3,840	4,200
5/16"	1,923	2,404	2,688	3,072	3,360
3/8"	1,600	2,000	2,240	2,560	2,800
7/16"	1,371	1,714	1,920	2,194	2,400
1/2"	1,200	1,500	1,680	1,920	2,100

THE advantages of stainless steel, long recognized by the food and beverage industry for use in utensils and other processing, storage, and serving equipment, are now available in beverage handling tubing which can be fabricated almost as easily as copper or block tin tubing.

Stainless steel beverage tubing offers such qualities as ease of cleaning, long life, protection of flavors and excellent resistance to corrosion, particularly to attack by carbonated water.

By following tested fabricating procedures, stainless steel beverage tubing can be installed successfully and without difficulty in conjunction with beverage dispensers, soda fountains, carbonators, or wherever portable liquids are handled.

Furnished with a special soft anneal, stainless beverage tubing can be bent, coiled, flattened, twisted, flared, upset and formed without danger of reducing the interior diameter. Pressure-tight, leakproof connections can be easily made with a variety of commercially available tube fittings.

The greater strength of stainless steel requires a little more muscle when coiling, bending or flaring, but this same strength also permits the use of lighter walls for better heat transfer and containment of pressure.

To achieve most satisfactory results with this type of tubing, however, certain precautions must be exercised. Here are some procedures recommended for installation of stainless beverage tubing:

CUTTING: To avoid snagging, use a saw with a fine tooth blade. A hacksaw will serve in most cases; a bandsaw will save time on production runs. A sawing vise to guide the hacksaw will make it easy to get a square, right-angle cut. Vises are available which will not flatten the tubing. A roll-type cutter may cause some collapsing of the tubing. It also cold-works the metal, making subsequent flaring difficult.

DEBURRING: After cutting, the tubing should be deburred. This can be done either with a file or with a standard inside-outside tube reamer. To avoid splitting when flaring, the edges must not be chamfered. All filings and chips must be removed from the inside of the tube to avoid pock marks or scratches on its inside surface.

Continued on page 70



CHECKING A WALL for metallic obstructions before cutting an opening for an under-the-window installation of a room air conditioner, Nick Sellati, assistant manager of Mahoney Air Conditioning Installation Service uses a special electronic device developed by the Mahoney firm for just this purpose.

Electronic Instrument Aids Contractor

An electronic instrument which will locate and trace metal objects, even when they are concealed in poured concrete, has been developed and put into practical use by Mahoney Air Conditioning Installation Service, Miami, Fla. The machine will detect anything from an electrical wire to steel beams, and even can be used to obtain a fair idea of the size of the metal objects being traced.

Built in a small metal box not much larger than a cigar box, the unit consists of a series of tubes and condensers plus a radio speaker. The finding portion is a small antenna which is plugged into the top.

By aiming the antenna at a blank wall and moving it about, metal concealed behind wood, plaster, or concrete is easily located and traced. When no metal is in the path of the antenna, a loud buzzing is given off by the radio speaker. When metal is present, however, the volume of the noise decreases sharply in proportion to the amount of metal. When brought in close contact to such objects as steel beams or large plumbing fixtures, the sound is completely shut off.

Thus, with very little experience, an operator can take this box and move it over a given portion of a wall and determine whether it is safe to cut through the wall without encountering hidden obstacles such as wires, pipes, heating ducts, or steel reinforcements.

The device is entirely portable, operating on two 1½-volt dry cell batteries and a larger dry cell battery. The machine operates with a trigger switch, and a spring automatically cuts the current off when the trigger is released. Volume control is adjustable with a knob.

The Mahoney firm finds this "home-made" instrument to be invaluable in its specialty of installing room air conditioners in walls. David A. Mahoney reports that the first instrument cost in the neighborhood of \$400, but that he saved that much on one contract which called for installation of 60 air conditioning units in a large hotel. It has virtually eliminated the old problems of starting to cut a hole through a concrete block wall only to encounter plumbing fixtures and have to seal the hole up and start another one.



CHECKING ice production figures of this custom-built installation is the manager of Lande's restaurant in Denver. The new equipment packed into this tiny space made it possible for the restaurant to completely satisfy its own ice requirements, and eliminate all outside purchases.

SAVE SPACE . . . SELL ICE MAKERS

That's the merchandising program which has more than doubled sales of this type of equipment for a Denver dealer who concentrates on the needs of the food service field

CAUGHT in the squeeze of steadily increasing business volume resulting from the city's rapid population growth in recent years and lack of space in which to expand their physical facilities, many Denver, Colo., restaurant owners are eagerly receptive to any suggestions which will enable them to serve more customers quickly and efficiently with the limited confines of their existing space.

Determined to capitalize on this special set of conditions, Arctic Refrigeration, Inc., has set in

motion a specialized sales campaign aimed at showing proprietors of food and beverage service establishments how they can substantially increase their production of ice without a corresponding increase in the amount of space required for the equipment.

The result? Record sales of automatic ice cubers for Nick and Tom Meyer, who operate this enterprising commercial refrigeration dealership.

Key to the space conservation program being merchandised by this firm to restaurant and tavern owners

is the fact that Arctic operates its own completely equipped four-man sheet metal shop at its Acoma St. headquarters. This makes it possible for the dealer to custom build such accessories as ice storage chests and machine housings in order to tailor ice making facilities to the precise measurements of almost any location, regardless of how cramped the quarters.

To keep this specialized sales campaign rolling, Arctic Refrigeration salesmen are making one call after another on all types of food and beverage service establishments which have experienced an obvious increase in business in the past few years.

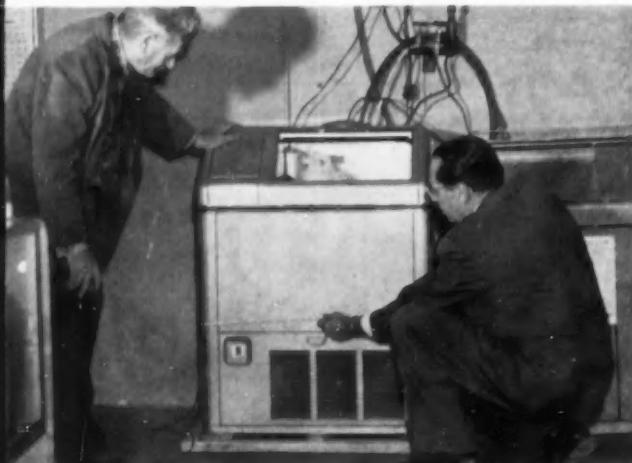
"The first thing we ask the proprietor," Nick Meyer explains, "is if he is finding it necessary to purchase any ice, in either cube or crushed form, from outside sources. If the answer is affirmative, it's a sure-fire indication that his existing ice making equipment simply hasn't the capacity to keep up with current demands. That's our cue to ask for permission to analyze the owner's ice supply problem and make our recommendations as to how production can be stepped up to meet the existing demand within the space available.

"In most cases," Meyer reports, "this suggestion meets with enthusiastic acceptance on the part of the restaurant or tavern proprietor. Then, of course, it's up to us to 'deliver the goods' by proving we actually can do what we say we can."

A typical installation of this sort was made by Arctic at Lande's of Denver, a smart restaurant and cocktail lounge in the mid-town section of the city. Only a few years ago, Lande's had installed an 800-pound-per-day ice machine and a bin which would hold approximately 1000 pounds of ice.

With the increased trade resulting from the heavy build-up of population which this section of the city has experienced, however, the restaurant began running

Continued on page 77



EVERY INCH COUNTS when it comes to selling ice making equipment to restaurant owners. Here a salesman for Arctic Refrigeration, Inc., proves to a dubious customer that the equipment actually will fit the location in question.

On-the-Spot Collections Solve Service Credit Problems

MAKE every serviceman a collector. That's the simple but effective formula which has been applied by John H. and Earl Hunter, operators of a pioneer refrigeration and appliance firm in Brownsville, Tex., to largely eliminate the credit problem in the company's service department.

What's equally important is that the servicemen heartily approved of this program. The reason? They personally receive a straight 5% of all accounts collected. This ruling holds true regardless of the nature of the account.

Much of the company's service business is on a cash basis, anyway, but the management willingly pays this 5% to make bringing back the money a cheerful task for the servicemen, rather than a job grudgingly performed.

Each serviceman knows by the information on his job ticket whether or not the job is to be cash upon completion or is chargeable. Naturally, if it is a designated cash job, he must bring back the money or have an excellent reason for not bringing it. But even if the customer's credit is good, he still may collect the proper amount upon the completion of the service call, turn in the money, and receive his commission.

"We find it's well worth the 5% particularly on the average small service account, to avoid recording it and sending out a statement," explains John Hunter. "It costs us more than this amount to handle an account of \$20 or less. So the 5% commission is a good investment for us, in addition to serving as an inducement to the servicemen to bring back the money, regardless of whether the call is on a cash or charge account.

Naturally, servicemen are cautioned not to embarrass regular customers by demanding payment. But they are told that they may suggest it—in a nice way—and explain that payment then will avoid bothersome details for both the customer and the company later.

"The only weakness in the plan," Hunter observes wryly, "is that some servicemen become so eager in their collecting job that they may collect for a job running into several hundred dollars from a customer whose credit is excellent. Naturally we caution them against this, but now and then one of them will do it anyway—and we pay him his 5%."

The firm's average serviceman, Hunter reports, makes from \$25 to as much as \$100 a month extra through his collection commissions, and the company profits accordingly from the reduction of delinquent accounts and the decrease in bookkeeping required.

COMMERCIAL REFRIGERATOR SALES NEWS

Distributors Join Manufacturers in Committee To Study Mutual Problems

AS a means for promoting a closer liaison between the two national trade associations representing manufacturers and distributors of commercial refrigerators, S. G. Taylor, president of National Commercial Refrigerator Sales Association, and W. J. Stelpflug, president of Commercial Refrigerator Manufacturers Association, have collaborated in forming a permanent NCRSA-CRMA Joint Relations Committee composed of executive members from the two groups.

The manufacturers will be represented by Arthur B. Biddle, Hussmann Refrigeration, Inc., St. Louis; A. T. Mickle, Federal Refrigerator Mfg. Co., Waukesha, Wis.; John S. Twist, Sherer-Gillett Co., Marshall, Mich.; Harry N. Corbin, C. V. Hill & Co., Trenton, N. J.; and Ray L. Greene, Tyler Refrigeration Corp., Niles, Mich.,

with Stelpflug, who is president of Hussmann Refrigeration Inc., serving ex-officio.

The NCRSA membership will be represented by Dudley M. Cawthon, Dudley Cawthon, Inc., Miami; Donald D. Denny, Modern Market Fixtures, Inc., Dayton, Ohio; S. W. Davis, Jr., S. W. Davis, Jr., Inc., Greensboro, N. C.; Milton I. Schwartz, S. & M. Schwartz & Co., New York; George F. Wiedemer, Cable-Wiedemer, Inc., Rochester, N. Y.; and Ray H. Winther, Ray Winther Co., San Francisco, with Taylor, head of Taylor Refrigerator Co., Des Moines, acting in an ex-officio capacity.

The initial meeting of the new committee will be held in Cleveland in early May, when an agenda covering subjects of mutual interest now being developed within the committee will be discussed.

Further meetings will be held whenever, in the opinion of either segment, objective consideration of problems affecting the well-being of the industry are deemed advisable. The committee will select a chairman at the May meeting.

Meanwhile, Wiedemer is spearheading the task of organizing the promising new activity and, in conjunction with Stelpflug and Taylor, studying the intra-industry economic picture with the view to determining factors or trends suitable for cooperative attention.

INDUSTRY FIRMS IN RESTAURANT SHOW

Several manufacturers of air conditioning and refrigeration equipment will be among the exhibitors in the 1956 National Restaurant Show, to be held May 7-11 in Navy Pier, Chicago.

Exhibitors from this industry include: American Automatic Ice Machine Co., Carbonic Dispensers Inc., Carrier Corp., Dunhill Soda Fountain Corp., Fogel Refrigerator Co., Foster Refrigerator Co., Frigidaire Div. of General Motors Corp., Herrick Refrigerator Co., Ideal Cooler Corp., Jordon Refrigerator Co., Stanley Knight Corp., Koch Refrigerators Inc.

LaCrosse Cooler Co., Leitner Equipment Co., Lern Inc., Marby Co., McCall Refrigerator Corp., McCray Refrigerator Co., National

VARIED COOLING UNITS HELP SOLVE MARKET'S VARIED PROBLEMS



LARGEST SUPER MARKET in the east, located in New Dorp, Staten Island, N.Y., has solved the unique cooling problems brought up by combining food and fashion under one roof. Operated by Food Farm Supermarkets, the store's two sections—food and clothing—occupy over 40,000 square feet of area with a combined



refrigeration and air conditioning load of over 160 tons. Tenney half-round unit coolers (left) were selected for such areas as fish, produce and delicatessen boxes and Tenney coil and pan combinations were used for pre-pack and meat storage rooms to keep these perishable products in the best possible condition.

Cooler Corp., Port Morris Machine & Tool Works, Puffer-Hubbard Mfg. Co., Ruet Engineering Co., S & R Soda Fountain Mfg. Co., Seco Co. Inc.; Star Mfg. Co., Sweden Freezer Mfg. Co., Temprite Products Corp., Tyler Refrigeration, Uniflow Mfg. Co., United Refrigerator Co., Victory Metal Mfg. Corp., and York Corp.

BUY FROM YOUR
REFRIGERATION WHOLESALER

NEW TYLER SERVICE TO MAKE STORES COLORFUL

A new system for the effective use of color in food stores has been announced by Robert L. Tyler, president, Tyler Refrigeration Corp. Developed in consultation with Howard Ketcham, Inc., of New York, nationally-known color authorities, it has been termed the "Tyler-Ketcham Color Compatibility System" and will be offered to all food store operators, as part of the expanded services of the Tyler Store Planning Dept.

The Tyler-Ketcham Color Compatibility System is comprised of a series of color groups designed to provide a wide choice of color schemes that harmonize effectively with food store merchandise, and to make the store a pleasant place in which to shop. It offers a wide range of selections to permit every customer to have a color plan distinctive in character from that of any other food market.

Four recommended modern, flexible color plans are included—one for each group of Tyler basic color ensembles. Each plan includes complete color selections for equipment, walls, flooring, interior signs and lettering.



THESE SODAMASTER FEATURES STIMULATE CUSTOMER INTEREST, CLOSE SALES

- The identical beverages previously obtained from bottles—with carbonation equal or higher.
- As much as 65% savings on bottled flavors, 96% savings on club soda.
- A variety of flavors, instantaneously, at the finger tips.
- Unmatched service speed, avoiding dissatisfaction and "walkouts" at rush periods.
- Elimination of costly, troublesome, time-consuming bottle handling.
- Uniform coldness and perfect proportions of beverages, automatically.

MAIL THIS COUPON TODAY

For literature outlining the opportunity now open to make bigger profits selling Carbonic Dispenser Sodamaster, Mix-Monitor Faucet and Supercharger Carbonator Equipment.

Name _____

Address _____

City _____ State _____

West Coast Plant: 16028 S. Marquardt Ave., P. O. Box 142 Norwalk, Calif.
IN CANADA: GENERAL EQUIPMENT CORP., LTD., TORONTO, ONT.

Circle No. 47 on Reader Service Card



TRAINING SCHOOL HELD FOR AIR BASE MEN

Twenty-one Barksdale Air Force Base personnel, seven airmen and 14 civilians, recently attended a 2-day school course given by the Airtemp Institute of Refrigeration and Air Conditioning at the Capt. Shreve Hotel, Shreveport, La. Purpose of the course, designed primarily for Barksdale personnel, was to familiarize air conditioning workers of the 805th Installations Sq. with current equipment and further their technical knowledge.

Airtemp dealers and representatives from the local area, including Joe Morrissey, factory service engineer from New Orleans district, also attended the meeting. Design engineers, education and public relations department representatives from the Airtemp Dayton plant were likewise present.

The course was sponsored by the local dealer, Robinson's Air Conditioning and Heating Co., and the area distributor from Monroe, La., and the Ark-La-Tex Engineering Co.

CALIFORNIA FIRM NAMED

F. J. Hearty & Co., Los Angeles, Calif., has been appointed southern California sales representative for the heating and air conditioning products of Union Asbestos & Rubber Co. The company will represent Unarco in California, south of the San Luis Obispo, Kern and San Bernardino county lines.

AMANA HONORS 5 FOR CONDITIONER SALES

Five distributors were awarded plaques in recognition of the air conditioner sales at the recent Amana Refrigeration, Inc. regional sales meetings. The distributors were Southwestern Distributors, Memphis; Columbian Electrical Co., Kansas City; Kaemper & Barrett, San Francisco; Tri-City Sales Corp., Davenport, Iowa; and Main-Line Distributors, Inc., Chicago.

WAGNER TOOL BUILDING NEW PLANT IN FLORIDA

Wagner Tool and Supply Corp., Long Island City, N. Y. is moving to Florida, and building a modern assembling and shipping plant.

The new location is 1020 East 15th St. Hialeah, Fla. The new structure will be built according to plans designed and perfected over the years, and will feature an all-on-one floor operation. Having laboratory facilities, plus loading and shipping platforms in the building plan will allow for a "first in automation" in the refrigeration tool manufacturing industry, the company says.

WISCONSIN ENGINEERS MEET MAY 4-5

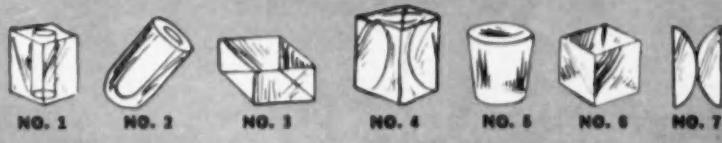
Wisconsin State Association of Refrigeration Engineers will hold its 1956 annual state convention at Oakton Manor, Pewaukee, Wis., May 4-5.

ARW REGION III MEETS

Region III of Air Conditioning and Refrigeration Wholesalers held its spring meeting March 24 at the Cavalier Hotel, Virginia Beach, Va., in association with the ninth annual state convention of the Virginia State Association of Refrigeration Service Engineers Society.

Speakers at the ARW meeting included Joe Hoopes of Du Pont, who discussed the findings of the Du Pont air conditioning consumer survey as adaptable to refrigeration wholesalers; and president E. L. Tramposh of the national ARW group.

WHICH IS A CUBE?



NO. 6 BY WEBSTER'S DICTIONARY

**IT'S CLEAR
IT'S SOLID
IT'S HARD
IT'S A CUBE!**



FEW
MOVING PARTS...
EASILY ACCESSIBLE
... WE'VE KICKED
THE DAYLITES OUT
OF SERVICE PROB-
LEMS!

- New patented flow principle washes the surface of cubes being frozen... washes away all minerals, solids, air... guarantees crystal clear, solid cubes.
- Water circulating system uses approved plastics... no clogging... no tainted flavor in cubes.
- No float valves to stick... no danger of floods... trouble-free performance.

WRITE FOR DESCRIPTIVE LITERATURE AND PRICES

KOLD-DRAFT DIVISION

UNIFLOW MANUFACTURING COMPANY
EAST LAKE ROAD - ERIE, PENNSYLVANIA

© 1956, UNIFLOW MFG. CO.

*TRADEMARK REG. U. S. PAT. OFF.

We Pump ♦ We Soften ♦ We Filter ♦ We Cool ♦ We Freeze ♦

**WE KNOW
WATER**

Circle No. 48 on Reader Service Card

THE COMMERCIAL REFRIGERATION and AIR CONDITIONING

APPLICATIONS MANUAL

The Problems of Multiplexing; A Service Engineer's Viewpoint

by Vincent H. Hodis

WITH the advent of the direct-drive hermetically sealed condensing unit, many problems such as leaky shaft seals, pulley alignment, and periodic oiling of the motor were reduced or eliminated. The service technician no longer can vary compressor capacity merely by changing a pulley or a motor to permit the defrosting of the coil, the controlling of the humidity in the storage space, or the improving of the compressor running time.

He is confronted instead by the problem of installing, servicing, and very often the designing of a system where there is no possible variance of capacity short of changing its individual components.

The problem is particularly evident in the design of several cooler rooms refrigerated by a single compressor. This type of system is used where space requirements will not permit a separate condensing unit for each refrigerated space.

The following operating system designed by a consulting engineer will serve for the purpose of discussion.

Room Use	Room Temp.	Coil Cap. Btu 1 hr/10° TD
Meat	35 F	7000
Dairy	35 F	7000
Vegetable	35 F	7000

TD = Room Temp. — Refrig. Temp.
A liquid line solenoid valve and thermostat was installed in each room.
An evaporator pressure regulator

Vincent H. Hodis of Bozeman, Mont., with a background of 20 years of experience in refrigeration service, has submitted this material to our Applications Manual section with the hope of helping other service technicians to better understand the problems involved in a multiplexed refrigeration system.

was installed in the suction line adjacent to each blower coil.

A 3-hp water cooled compressor was specified to refrigerate the three rooms.

The total coil capacity, from the specifications in the preceding table, is 21,000 Btu per hr. This Btu rating is relatively constant due to the operation of the evaporator pressure regulator maintaining a 25 F refrigerant temperature.

Therefore, the combined capacity of the three blower units represents the absolute maximum rating of the coil regardless of suction pressure at the compressor. This indicates that a condensing unit with a rating of 21,000 Btu at 25 F suction temperature is desired. During periods when a single evaporator is operating in the system, however, the load demand would be 7,000 Btu per hr.

Choosing Compressor

Remember, the evaporator pressure regulator maintains the refrigerant temperature at 25 F. In this instance, therefore, the coil capacity does not change with a reduction in the suction pressure. In short, a compressor should be chosen that is capable of handling the maximum combined coil capacity, yet will operate on the highest suction pressure feasible during periods of single room operation. This fact suggests that the coils should be oversized in relation to cooler-room load requirements to permit a better coil-to-compressor balance.

A 1½-hp compressor removes 16,020 Btu at 25 F suction temperature, and will balance the coil capacity of 7,000 Btu for the single unit at approximately 5 psi gage. To exceed the 1½ hp causes a reduction in suction pressure. The result is an increase in kw per ton of refrigeration, and in general a rise in the cost of operation to the consumer.

If this compressor is not of a ca-

pacity to meet load requirements, determined by cooler load calculations, then the coil size should be increased to permit compressor operation on a positive back pressure. The compressor size should then be chosen equal to the load requirements of the cooler.

Operating Experience

It is evident that the 3-hp compressor specified in the example is considerably oversized. This fact became evident when the plant was placed in operation. The only alternative to removing the compressor and installing a smaller one was to open the regulators to the maximum. This permits the compressor to balance the existing evaporator capacity, at a considerably reduced saturation temperature, resulting in excessive dehydration of the stored products.

This problem could have been avoided if the designing engineer had specified a coil capacity rating of 12,500 Btu per hr at 10 F temperature difference.

A 2-hp compressor would have sufficient capacity to handle the 21,000 Btu load and would operate at approximately 10 psi gage on a single blower coil.

McCOMBS WILL HANDLE AMERICAN BLOWER LINE

Appointment of two new distributors for American Blower Corp.'s line of self-contained air conditioning units in 3 to 20 ton capacities has been announced by E. W. Petersen, vice president in charge of sales.

McCombs Supply Co., Denver, will cover Colorado, central southeastern Wyoming, southwestern South Dakota, western Nebraska and the extreme western part of Kansas. H. R. McCombs is president of the company.

Marbut Co., Macon, Ga., will represent American Blower in Central and southern Georgia and the extreme north central Florida areas.

RICHMOND WHOLESALER NOW IN NEW "HOME"

Refrigeration Supply Co., Richmond, Va., held formal opening of its new headquarters at 1221-23 Admiral St. on March 16 and 17. Open house was from 6 to 9 p.m. on March 16 and from 10 a.m. to 4 p.m. on March 17.



Permagum makes a perfect seal every time

Manufacturers and service men alike prefer the positive sealing action they get from Permagum. Used to seal inspection plates, pipe and conduit openings, refrigeration and display cases, Permagum eliminates the host of troubles which condensation can bring down on your head—from just plain heat loss to ruined insulation.

These men are using gray-white Permagum, which is odorless, never hardens, and can be

painted over immediately after application. Since it won't attack insulation, it is ideal for use around electrical wiring, rubber or plastics. Brown Permagum is a heavy-duty sealer which will adhere to any dry surface and remain pliable from 0° to 350°. Both forms come in 2½ lb. and 55 lb. slugs, while gray-white Permagum is also available in 80 ft. rolls of 3/16" cords and 20 ft. rolls of 3/8" cords.

Your wholesaler has Perma-

gum—or write Refrigeration Division, VIRGINIA SMELTING Co., Dept. 64, West Norfolk, Va.



ESOTOG • KINETIC CHEMICAL'S "FREON" REFRIGERANTS • METHYL
CAR-O-GAS • PERMAGUM • PRESSTITE TAPE • KWIKWERT • BONDO
REFRIGERATION OILS • WATER TREATMENT CHEMICALS
Available in Canada and many other countries



Won't attack electrical insulation.



Seals pipe openings permanently.

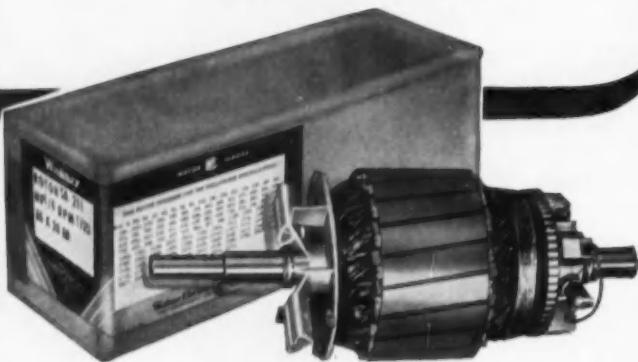


Perfect for refrigerator and display cases.



... here's a tip for **MOTOR REPAIR MEN**
from **GENUINE JOE**

YOU CAN SAVE MONEY
and rewinding time
If you use
Wagner STANDARD ROTORS
on small motors



The next time a rotor on a small motor needs servicing, don't rewind it... replace it with a Wagner Standard Rotor. This way, your winders stay free for bigger and more profitable jobs.

There's no problem with special shafts. You can easily remove the shaft from the Standard Rotor and replace it with the special one.

And there's no guesswork in finding the rotor you need for your motors. Wagner K and M "spec" lists, when used with the "tell-all" label on the rotor package, assure the right choice every time. You'll find the "spec" lists in Catalog MU-40 which is yours for the asking—so write today.

**It's wise to stock
Wagner Replacement Motors**

Smart motor repairmen always carry a stock of Wagner Replacement Motors. They come in handy for emergency use when your customer needs immediate service, and they're easy to sell as replacements for motors "too far gone" for repairs.



WAGNER ELECTRIC CORPORATION
6442 Plymouth Ave., St. Louis 14, Mo., U. S. A.

MOTORS - BEARINGS - STANDARD ROTORS
BRUSHES - CAPACITORS - COMMUTATORS

OVER 850 AUTHORIZED SERVICE STATIONS
OR PARTS DISTRIBUTORS

Circle No. 50 on Reader Service Card

M566-8

STAINLESS STEEL TUBING . . .
Continued from page 61

FLARING: The tubing can be readily flared with a flaring tool, or a standard hammer type tool. Flaring tools are available to make either a 45 or a 37 degree flare. Flareless type fittings also may be used on stainless beverage tubing. Upset type connections with silver solder have been successfully used.

BENDING: To prevent flattening, the tubing should be bent in one of the new, improved lever-type benders. This new design eliminates retaining clamps. Combination benders which accommodate several sizes of tubing are available.

Precipitated scale on inside of the tube has more effect on heat transfer of the tube than the metal from which the tube is made. For this and obvious sanitary reasons it is desirable to clean out coil and line deposits frequently, using cleaning compounds recommended by the original equipment manufacturer.

Stainless steel beverage tubing is available with o.d. and wall thickness tolerances conforming to Formed Steel Institute standards. Recommended maximum working pressures for various sizes and wall thicknesses are shown in the table accompanying this article.



**REDMOND BUILDS NEW
PLANT IN INDIANA**

A new plant in Angola, Ind., is now being completed by Redmond Co., Inc., manufacturers of fractional horsepower electric motors. According to James W. Tweedy, president of Redmond, this plant was designed and laid out specifically to produce a new style motor that Redmond is adding to its line.

Tweedy stated that the new motor is different in performance and structure from those now manufactured by Redmond, and will enable the company to cover more fully the entire fractional horsepower field. The company expects the new Angola plant to be in full operation about May 1.

Circle No. 51 on Reader Service Card



Gloekler MEANS BUSINESS

- ★ **EXPERIENCE:** Gloekler has been designing and manufacturing commercial refrigerators for more than 50 years.
- ★ **QUALITY:** Only materials and workmanship that assure maximum performance are used in our products.
- ★ **DESIGN:** Both standard and custom designs are available —offer every important advantage to users.
- ★ **PERFORMANCE:** We provide written assurance of faithful performance and economical maintenance of each unit.
- ★ **PRICING:** Experience and modern production methods allow highest quality standards at competitive prices.
- ★ **PROFIT:** Dealers are assured of full markups and additional potential profit from customers through sale of add-on features.

**WALK-IN & REACH-IN REFRIGERATORS
STANDARD AND CUSTOM DESIGNS
FOR EVERY COMMERCIAL and INSTITUTIONAL USE**

**GLOEKLER REFRIGERATOR CO.
ERIE, PENNSYLVANIA**

defrost cold customers and make extra profits with HIRSH



Showline

Supply the complete fixture service that grocers want by selling Showline shelving with your refrigerated equipment. Showline's low delivered price will give you a competitive edge on every bid, more profit on every sale with no increase in selling cost! Get the facts about Showline now, and start selling more new customers and increasing profits!

- Comes complete
- Low delivered cost
- Preferred and pre-sold
- Pre-finished
- Easy to specify and install
- Super strong steel construction
- Beautiful Hirshwood shelves
- Push button shelf adjustability

Dealers! A few territories still available. Write for details!

Mail the coupon today for FREE literature!



The people who know self-service best!

made by



CR-4

S. A. HIRSH MFG. CO.

8051 Central Park Ave., Skokie, Illinois

Gentlemen: Please send information on selling Hirsh Showline Shelving.

Firm _____

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

CONTRACTORS

NEWS • ACTIVITIES • PLANS

Detroit Contractors Plan Expanded Program to Solve Mutual Problems

PLANS of the Refrigeration & Air Conditioning Contractors Association of Detroit for an expanded program to help contractors solve mutual problems were outlined at an open meeting held recently at the Detroit-Leland hotel.

Some 40 contractors and servicemen in the Greater Detroit area turned out for the meeting. They were told that only through a strong organization can many of their problems be solved.

Officers and speakers at the meeting discussed common problems facing refrigeration and air conditioning contractors today, and outlined association objectives aimed at meeting these problems.

These objectives include a sound labor relations program, a coordinated public relations program, a government relations program, an apprentice training program, an improved code of ethics, and collection and distribution of statistical data in the field.

Air conditioning, the Detroit contractors were told, has grown in volume from one-half billion dollars to over \$2 billion in the last six years and "it's here to stay."

But, it was pointed out, no longer is air conditioning equipment distributed exclusively through refrigeration contractors. Now, some distribution is also through plumbing contractors, electrical contractors, warm air heating contractors, sheet metal contractors, and others.

There's nothing wrong with that, in itself, it was stated. This is a healthy sign of public acceptance and not to be criticized, for the more people talk air conditioning, the more will be sold.

However, the group was told

that "a serious secondary result has now developed" in that there is a "concentrated and powerful move by other trade and labor organizations to claim jurisdiction."

"The refrigeration and air conditioning industry will lose its identity as such unless we gain strength and work together" to influence, "for good," such matters as code considerations and jurisdictional decisions, which could result in increased costs to the public," the Detroit group was told.

Robert A. Sullivan, executive secretary, emphasized the importance of group strength and collective thinking to accomplish objectives and solve common problems.

VA. LICENSING BILL DIES IN LEGISLATURE

A proposed bill which would have created a state licensing board and voluntary certification for plumbing, heating, and air conditioning contractors in Virginia was killed in a house committee

of the state legislature.

Chief support for the measure came from the Virginia Associated Heating and Plumbing Contractors. Air conditioning contractors, however, generally opposed the bill.

Chief opposition to the measure was voiced at a public "standing-room-only" hearing by Paul Bruffey of Bruffey's Refrigeration Service, Richmond, who complained that the proposed bill didn't recognize air conditioning as a separate trade. Bruffey was recently elected president of the Virginia Refrigeration Trade Association.

The Refrigeration & Air Conditioning Contractors Association of Richmond had watched the measure with close attention.

Earlier a bill which would have required mandatory certification of contractors had been defeated in similar fashion.

Following defeat of the latest bill, it was learned that the local RACCA group, RTA, and other interested parties hope to work up a bill for state licensing that would be presented at the next session of the legislature.

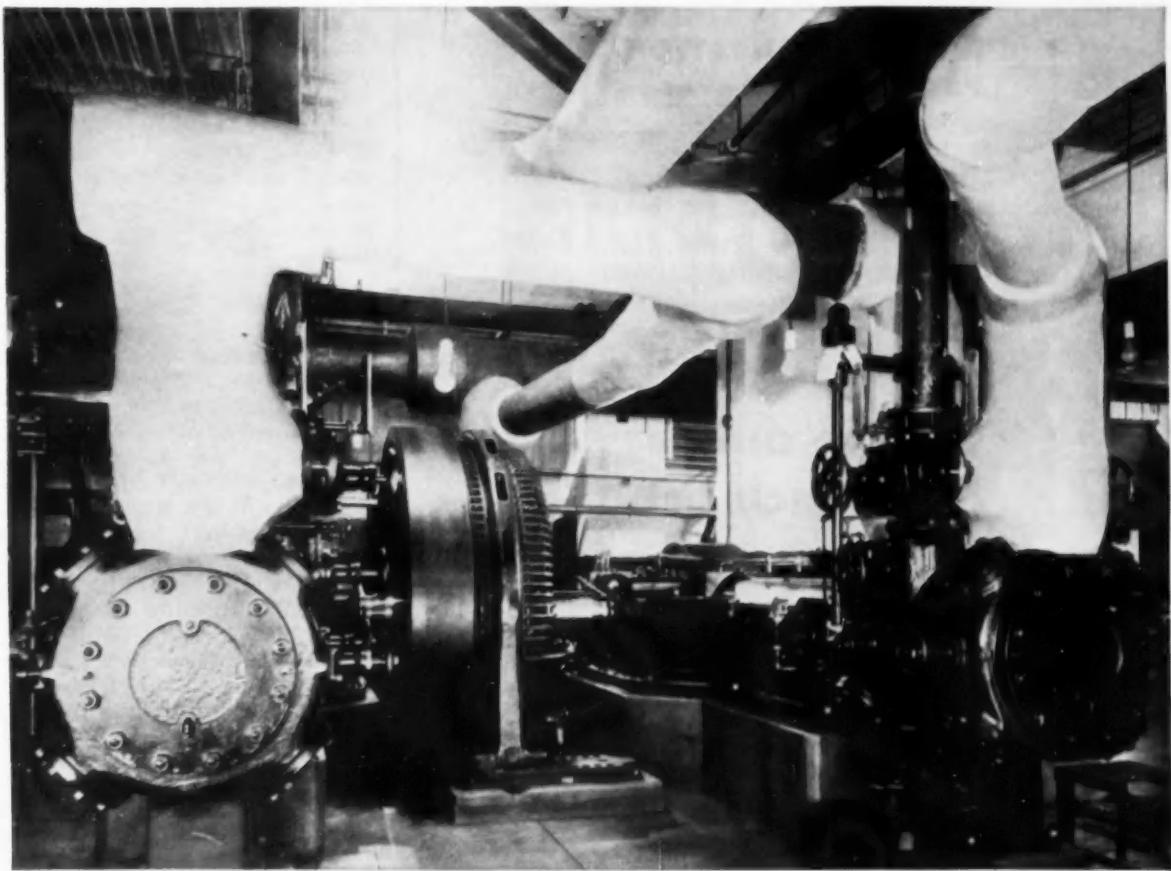
RACCA OF NEW JERSEY INSTALLS '56 OFFICERS

Officers of the Refrigeration & Air Conditioning Contractors Association of New Jersey for 1956 were installed at the group's annual ladies night dinner and dance held at the Military Park Hotel, in Newark.

Officers are James W. Naughton, C. W. Fricke Co., Rutherford,



TINY BUT COMFORTABLE is the Navy's first midget submarine (USS X-1), shown here. The four-man crew will be kept comfortable by a 1-ton Carrier air conditioning system. This new addition to the fleet weighs 25 tons, is 50 ft. long, and has a maximum diameter of 7 ft. Air conditioning equipment occupies about the same space as would be required for a 50-gal. oil drum. Copper cooling and heating coils are installed directly in the ducts.



How to keep costs and temperatures low

LUBRICATE compressors with *Texaco Capella Oil (Waxfree)*. It won't wax out in the system — assures clean, dependable performance even on special jobs calling for temperatures as low as minus 100° F.

Texaco Capella Oil (Waxfree) exceeds the requirements of the Freon floc test, as well as the specifications of all leading refrigeration manufacturers. It remains stable throughout its long service life, effectively resists oxidation. It does not foam and is compatible with all refrigerants.

There is a complete line of *Texaco Capella Oils*

(*Waxfree*) to meet all compressor requirements. Available in 55-gallon and 5-gallon drums, 1-gallon cans, and the more popular grades in 1-quart containers — all refinery-sealed to protect purity and quality.

Let a Texaco Lubrication Engineer help you put your cooling operation on a high-efficiency, low-cost basis. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.



TEXACO Capella Oils (Waxfree)

FOR ALL REFRIGERATING AND AIR CONDITIONING COMPRESSORS

TUNE IN: TEXACO STAR THEATER starring JIMMY DURANTE on TV Sat. nights. METROPOLITAN OPERA radio broadcasts Sat. afternoons.

& AIR CONDITIONING • APRIL, 1956

Circle No. 53 on Reader Service Card

End PIPE CONDENSATION PROBLEMS Forever



**the only
1/4-inch tape
with 3 separate
insulating barriers**



Only NoDrip Tape offers you *triple insulation*—stops condensation drip forever—makes waste space completely useable—gives you easiest, labor-saving installation.

NoDrip Tape is a pliable, cork-filled 8-strand covering...self-adhering, becomes a sealed pipe jacket the instant it's pressed in place. 100% vapor and moisture proof.

Requires no vapor-seal tapes or over-wraps. No fasteners, tools, brads or adhesives. Winds spirally around any tubing or pipe—around joints, tees, valves or angles. No experience needed...anyone can apply NoDrip Tape.

**SOLD THROUGH
LEADING WHOLESALERS**

FREE! Bulletin D-40

J. W. Mortell Company
553 Borch St., Kankakee, Ill., Dept. 4
Please send me FREE copy of
Bulletin D-40

Name _____

Address _____

City _____ State _____



Circle No. 54 on Reader Service Card

president; Charles Edmond, Engineering & Refrigeration, Inc., Jersey City, vice president; William J. Capo, Cleworth Co., Elizabeth, secretary-treasurer; William P. Emley, William P. Emley & Son, Long Branch, Sergeant-at-arms; and John S. Sanok, Conditioning Co., Newark, board chairman.

Also installed as directors were Silvio Filippone, Filippone Refrigeration Co., Jersey City; Al G. Dietl, Dietl & Kraft, Inc., Newark; and Harold Rohloff, Refrigeration of North Jersey, Inc., Dover.

Five directors, whose terms have not expired, are: Michael Dee Petillo, Tony Petillo Refrigeration Co., Nutley; Paul B. Hughes, Electric Products, Inc., Jersey City; Leo Zitani, Fortune Refrigeration Co., Jersey City; Bernard Hassan, Hassan Bros., Belleville; and Frank Bader, Bader's Sales & Service, Inc., Highland Park.

Edgar Donohue, Nutley, is counsel, and Frederick H. Young, Nutley, is executive secretary.

**L. L. CARTER ELECTED
1956 RTA PRESIDENT**

L. L. Carter was elected president of the Refrigeration Trade Association of America at the organization's fourth annual convention in Washington, D.C., recently.

Sidney Bloom and J. B. Broughton were elected first and second vice presidents, respectively; O. Manley Smith, secretary; Leo Wolff, treasurer; Arthur Jarrett sergeant at arms; and Henry Van Langen, N. F. Crater, Sr., Herbert S. Dudley and A. C. Huber were named directors for two-year terms.

All officers will serve during the fiscal year beginning July 1.

Presentation of the association's first Outstanding Achievement Award was made to Mrs. Bessie Collins, widow of C. Braswell Collins, general counsel of RTA until his death last Jan. 17.

Committee chairmen appointed by president Carter included: A. C. Bates, motions and parliamentary procedure; R. L. Dillard, auditing; M. J. Horwitz, awards; George A. Brickle, ways and means; George Nash, convention and entertainment; N. F. Crater, Sr., organization; George Nash,

membership; Sam Pollock, publications; John Orner, legislative; R. H. Packett, inter-association relations; Henry Van Langen, research and education.

William G. Batrus was appointed general counsel; R. H. Packett, executive secretary; and N. F. Crater, Sr., chaplain.

MORE FTC HEARINGS ON DAIRY GIVEAWAYS HELD

The Federal Trade Commission recently held two more hearings on its charges against eight major ice cream companies of unfair methods of competition in the sale and distribution of ice cream and related frozen products.

A hearing was held Feb. 28 in Phoenix, Ariz. On complaints against Carnation Milk Co., Los Angeles; The Borden Co., New York City; and Arden Farms, Los Angeles.

Another hearing was conducted March 1 in Los Angeles in the Carnation and Arden Farms cases and also on complaints against Beatrice Foods, Chicago, and Foremost Ice Cream Co., Jacksonville, Fla.

Other companies against whom the charges have been made are National Dairy Products, New York City; Pet Milk Co., St. Louis; and Fairmont Foods Co., located in Omaha, Neb.

The charges primarily involve alleged unfair competition through the giving or leasing of refrigeration equipment to retail outlets, it was further reported.

COOLING, SHEET METAL MEN STUDY MERGER

A meeting looking forward to formation of a strong association uniting sheet metal, refrigeration, and air conditioning contractors in the San Bernardino-Riverside area was held recently.

More than 50 contractors attended the meeting.

Tom Topham, Tri City Climate Control, presided, assisted by Elmer Hill, Refrigeration Equipment & Supply, and Don McGarry, Base Line Sheet Metal. Henry B. Ely, executive secretary of the Refrigeration & Air Conditioning Contractors Association of Southern California, was a speaker.

IMPROVED APPRENTICE TRAINING PROPOSED

The Refrigeration and Air Conditioning Joint Apprenticeship Committee of Los Angeles and Orange Counties recently joined with the statewide Pipe Trades Joint Apprenticeship Council composed of plumbing, pipe fitting, and steam fitting representatives.

This first affiliation of refrigeration and air conditioning representatives took place at a statewide meeting held in Los Angeles. Representing the Refrigeration and

Air Conditioning group were Henry B. Ely and Gene Ballard, chairman and secretary, respectively, of the joint committee.

Among the subjects discussed was the need of re-writing the present outline for the refrigeration and air conditioning courses now given in the school system. This is made possible by the statewide affiliation since requests to the state for development of school training courses for apprentices must come from a statewide committee.

SINCE 1910

MOTOR CAPACITORS BY C-D



For nearly 45 years experts in motor service maintenance have relied on Cornell-Dubilier motor capacitors. The earliest practical and efficient AC electrolytic motor start capacitors were developed by C-D. Motor designers and equipment manufacturers long ago recognized the "Consistent Dependability" of C-D motor capacitors. No wonder there are more C-D capacitors in use today than any other make!

Always insist on C-D—there's a right type for every motor. Ask your C-D distributor for your free copy of C-D's famous motor capacitor Manual and Catalog No. 163. He's listed in your classified 'phone book, Dept. CR 65 Cornell-Dubilier Electric Corporation, South Plainfield, New Jersey.



CONSISTENTLY
CORNELL-DUBILIER CAPACITORS

PLANTS IN SOUTH PLAINFIELD, N. J.; NEW BEDFORD, WORCESTER AND CAMBRIDGE,

MASS.; PROVIDENCE AND HOPE VALLEY, R. I.; INDIANAPOLIS, IND.; BIRMINGHAM AND

FUGUAY SPRINGS, N. C.; SUBSIDIARY, THE RADIART CORPORATION, CLEVELAND, O.

THERE ARE MORE C-D CAPACITORS IN USE TODAY THAN ANY OTHER MAKE

Circle No. 55 on Reader Service Card

Build your own or use this
COMPLETE package
Liquid Cooler



The comprehensive line of B&G Cooling Equipment enables you to assemble individual components on the job, or to take advantage of completely self-contained units. The B&G Package Liquid Cooler illustrated here is pre-engineered and assembled at the factory. Your only responsibility is to place the unit in position and connect it into the system. Easy to move if ever necessary.

B&G Cooling Equipment offers an array of features well worth your critical examination. When you specify B&G products throughout, you are assured of equipment known for quality—with a single manufacturer's responsibility for satisfactory operation.

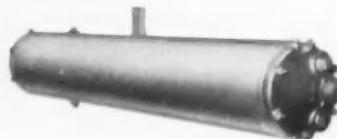
Write today for a complete file of B&G Cooling Equipment literature.



B&G Series 1522 Pumps



B&G Series 1531 Pumps



B&G Condensers



B&G Liquid Receivers

STOCK ITEMS FOR FAST SERVICE

For your convenience, a stock of most commonly used sizes of Centrifugal Pumps, Condensers, Liquid Receivers, and Heat Exchangers are kept in factory stock for immediate shipment. Send for literature.



BELL & GOSSETT
C O M P A N Y

Dept. EH-45, Morton Grove, Illinois

Canadian Licensee: S. A. Armstrong Ltd., 1400 O'Connor Drive, W. Toronto

Circle No. 56 on Reader Service Card

APRIL, 1956 • COMMERCIAL REFRIGERATION

SAVE SPACE . . .*Continued from page 63*

out of crushed ice about 2:30 every afternoon. Consequently, the management found it necessary each day to order several hundred-pound sacks of ice from the local ice plant to augment the restaurant's dwindling supply.

"Realizing that something would have to be done about this situation," Meyer reports, "owner Jack Lande readily consented to let Arctic Refrigeration survey the restaurant's ice making requirements and facilities. As a result, it was determined that the most effective solution to the problem would be to locate the new equipment on a platform sill at one side of the basement that measured only 30" deep by 4" wide.

Accordingly, Arctic installed a "Scotsman" ice making machine capable of producing 1270 pounds of ice per day, and a stainless steel storage bin with a capacity of 1400 pounds. The custom-built bin was made high as the ceiling clearance would allow, and by increasing the overall height of the adjacent ice maker and mounting it on an elevated platform it was possible to use 95% of the bin's interior space for crushed ice storage.

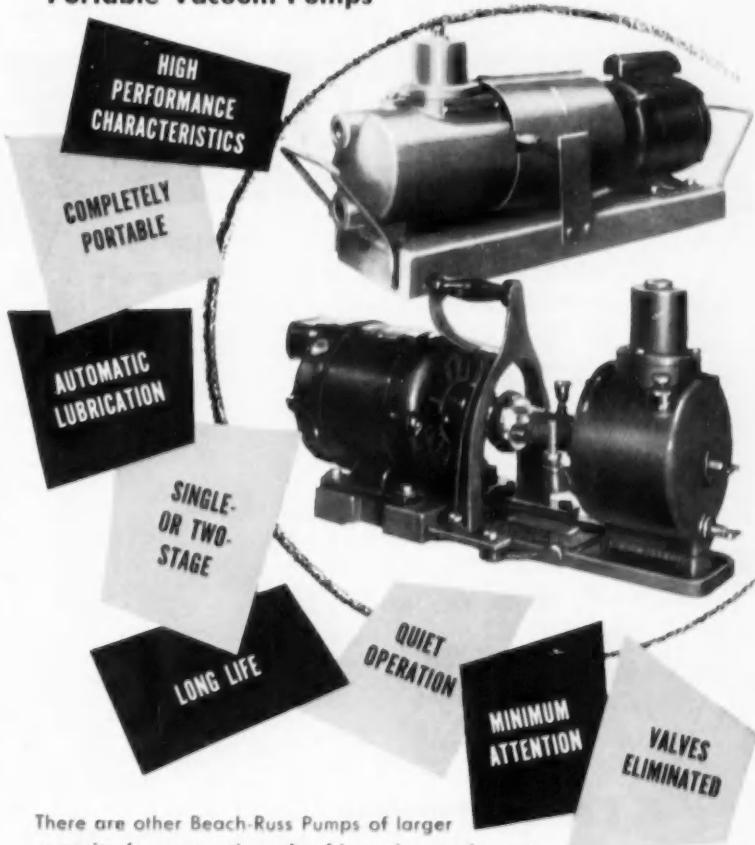
Production Up 33%

"This installation increased the restaurant's ice production by better than one-third," Meyer reports, "without necessitating the moving of any other equipment or the rearrangement of any of the basement facilities. Thus we completely eliminated the need for any emergency outside purchases of ice, even on days of peak patronage."

So successfully did this system operate that Meyer has since used it as a "demonstrator" to convince other prospects. For instance, when Meyer was having some trouble in selling a similar installation to the owner of Richards Fine Foods in suburban Englewood, he took this somewhat skeptical restaurateur over to see the Lande installation in actual operation.

Pulling out a tape measure right on the spot, Meyer proved to his

Everything

THE SERVICE MAN NEEDS**for Air-Conditioning and Refrigeration Test Work****is Found in BEACH-RUSS****Portable Vacuum Pumps**

There are other Beach-Russ Pumps of larger capacity for evacuation of refrigeration equipment on a production basis.

BEACH-RUSS COMPANY

50 CHURCH STREET • NEW YORK 7, N. Y. DEPT. 58

Send descriptive literature covering

 Model O Single-Stage Vacuum Pumps. Model A Two-Stage Pumps.

Name _____

Company _____

Address _____

City _____

Zone No. _____

State _____

BEACH-RUSS COMPANY

50 CHURCH STREET • NEW YORK 7, N. Y.

Circle No. 57 on Reader Service Card

prospect that it would be possible to install comparable facilities in the Richards restaurant by utilizing an area occupied by a small closet in the basement. Faced with this "see for yourself" type of salesmanship, Richards quickly signed the order.

In this restaurant Arctic installed a 550-pound capacity ice maker in conjunction with a tall, narrow stainless steel storage bin having a capacity of 1400 pounds. Use of the smaller ice machine was made possible by the fact that

this restaurant is closed one day a week, making it possible for the machine to build up a sizeable "backlog" of ice to supplement the machine's daily production during the following week.

REPRESENTATIVE NAMED

J. L. Myers Co., San Francisco, Calif., has been appointed sales representative by Kritzer Radiant Coils, Inc. The firm will cover northern California and Nevada.

"FIT" TO BE SOLD . . .

Continued from page 57

Being in a state where horse racing is widely popular, it follows that another of the Pfeiffer built-to-order installations is at Laurel Race Track in Laurel, Md. The food service concession here is handled by Harry M. Stevens, Inc.

Installation here is king-size, as befits the sport of kings, and involves a three-compartment walk-in measuring 28' x 13' x 7'6" high, and covering separate sections for commissary items, dairy products, and meats. Also in the refrigerator lineup is a separate freezer room 6' wide and 13' deep, butted against the three-compartment section, and a vegetable preparation walk-in room 10'6" x 7'9" x 7'6" high.

All the refrigerators here have galvanized lined interiors, and exteriors finished in gray enamel. Again, Bush blower coils were used in the normal temperature compartments and the system is powered by Brunner machines.

HENRY

The most complete line in sizes and types for refrigeration and air conditioning manufacturers, contractors and service men.

VALVES



PACKLESS



WING CAP



AMMONIA

DRIERS



NON-REFILLABLE



CARTRIDGE

STRAINERS



ANGLE



"Y" TYPE

RELIEF VALVES

STRAIGHT-THROUGH
AND ANGLE



UV ASME

NB National Board
Certified

HENRY VALVE COMPANY

3215 North Ave. • Melrose Park, Ill.

Circle No. 58 on Reader Service Card

PHOTOS, NOT FLOWERS . . .

Continued from page 59

He leaves it up to the customer to contact Gruenewald's regular photographer and set up the appointment, but the photographer in turn must get an OK from Gruenewald before shooting the pictures, if he wants to get paid for his work. The photographer is instructed to send the bill for the approved job directly to the Gruenewald organization.

Normally, Gruenewald will approve about three shots, one taken for his own specific purposes and the other two taken to please the customer. The customer is given his pick of the proofs. Then he is sent about half a dozen 8 x 10 prints of his favorite picture, plus a couple prints of each of the other shots, with the compliments of the Gruenewald organization. Should the customer desire extra prints of any of these pictures, he can order them directly from the photographer at a nominal charge.

How does this deal work out in dollars and cents? The photographer's bill usually runs between \$15 and \$25, plus a dollar for each print. By comparison, any decent floral display would cost a minimum of \$15. So the cost is little if any greater, especially when it is realized that at the same time the Gruenewald firm gets the pictures it wants for its own promotional purposes.

So impressed are many Gruenewald customers with this novel gesture that they frame one of these photos and display them on the walls of the new establishment. "Every man is understandably proud of any new place of business he may open," Gruenewald sagely points out, "and by supplying him with these pictures we are simply cashing in to that basic vanity."



FIRST LOOK at the "Modular Weathermaster", a new type of equipment expressly designed for central air conditioning of office buildings and similar structures, is obtained by Herbert Peacock (right) who heads Carrier Corp.'s New York office for large air conditioning and refrigeration installations, during a recent sales meeting at the company's headquarters. Pointing out features of the unit is Charles V. Fenn, vice president of Carrier's machinery and systems division, who presided over the meeting attended by 150 representatives from all parts of the U.S. and Canada.

NEW GENERAL CONTROLS OFFICE & WAREHOUSE

Construction has begun on General Controls new building at Bryant & 4th in San Francisco. This new 5000 sq. ft. structure will serve as showroom, sales office and warehouse for General Controls' San Francisco branch.

New Small Size! Lowest Cost Ever!

new...

Temprite **cadet**

water coolers



Cadet Model BT-2S overall measurements only 12" square x 36" high, (excluding bottle).

At last . . . an efficiency size, budget-priced bottled water cooler for high volume sales to offices, stores and countless other locations. Completely new Temprite Cadet water coolers are smartly fashioned to complement modern interiors, designed for installation in areas no larger than a square foot . . . and they're amazingly low priced! Temprite Cadet Model BT-2S uses bottled water . . . serves 60 people hourly under normal conditions . . . features new *whisper-quiet* operation!

Cadet coolers for connection to local water supply also available.

DESIGNED FOR HOMES!

Temprite Cadet Model KT-2S, designed expressly for homes, doctor's offices, laboratories, etc. Unit is standard counter height, finished in glistening white. May be used with 2, 3, or 5 gallon bottles, or water reservoir may be filled from kitchen tap. Sanitary cover optional.



TEMPRITE PRODUCTS CORPORATION
P.O. Box 72-A, E. Maple Rd., Birmingham, Mich.
Please send me complete data on new Temprite Cadet water coolers.

Name _____

Address _____

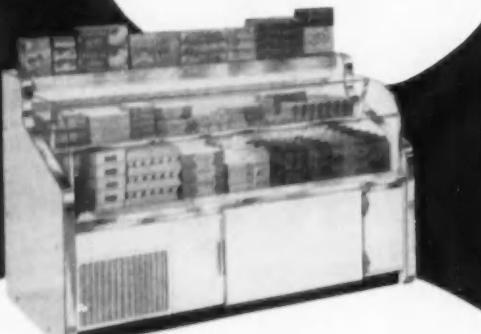
City _____ State _____

LCS*

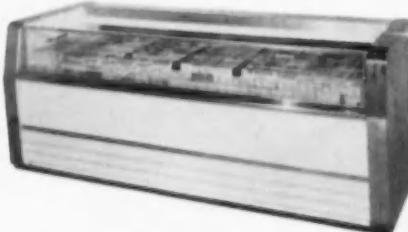
*LARGEST COIL SURFACE

Schmidt
(Builders of THESCO Equipment)

SELF-SERVICE CASES



- Large capacity display
- Large capacity storage
- No installation costs
- Forced air refrigeration
- Fits through standard door



- Self-contained
- Automatic defrost
- Capacity over 1000 packages
- Forced air circulation

Only SCHMIDT gives you LCS!
Write today for full information

THE C. SCHMIDT CO.
1712 JOHN ST., CINCINNATI 14, OHIO

Circle No. 60 on Reader Service Card

80

USEFUL

BULLETINS • BOOKLETS • CATALOGS

FEATURES OF ITS new "Tonrac" single-stage hermetic centrifugal refrigerating machine are described in an eight-page two-color catalog (Bulletin 1426) available from American Blower Corp. New bulletin describes in detail features of "Tonrac". Cutaway photograph illustrates various construction details, including condenser, single-stage compressor, marine-type water boxes, evaporator, tube bundle, float valve, lubricating system, motor and purge system. Photographs of typical installations are included, as are descriptions of related refrigerating and air conditioning equipment produced by American Blower.

Circle No. 205 on Reader Service Card

WALK-IN SECTIONAL coolers and freezers are described in a new four-page bulletin recently made available by The Marby Co. The units are available in stock and custom sizes, to meet needs of small establishments as well as larger storage requirements. Bulletin outlines construction features of the walk-in units, and gives specification details of the standard line of both walk-in coolers and walk-in freezers.

Circle No. 206 on Reader Service Card

A COMPLETE LINE of reach-in refrigerator and freezer models is pictured and described in a new 32-page catalog issued by McCall Refrigerator Corp. Technical specifications are provided for each model, and design and construction features are highlighted. A special section on a new line of automatic electric defrost bakery freezers also is included.

Circle No. 207 on Reader Service Card

FOUR NEW PIECES of literature have recently been published by Copeland Refrigeration Corp. First is a 32-page booklet describing the Copelametic line of condensing units. Air-cooled and water-cooled units from 1/3 through 7-1/2 hp are described. A 4-page bulletin describes Copelametic air-cooled 2, 3, and 5 hp units with suction-cooled motor-compressors. Motor-compressors, suction-cooled, for high temperature applications are described in a 4-page folder. Copelaweld motor-compressors are described in a 4-page sales folder listing data on units 1/2 hp through 1-1/2 hp for high-temperature (air conditioning applications only).

Circle No. 208 on Reader Service Card

COOLING CONTROL CATALOG, Bulletin 1487-AB, has just been announced by Penn Controls, Inc. This new 24-page catalog presents brief specifications operating data on Penn's line of mechanical cooling controls. Catalog is indexed for easy reference, and includes listing of Penn authorized service stations throughout the country.

Circle No. 209 on Reader Service Card

HOW TO USE La-Co Flux in soldering jobs is described in a new sheet put out by Lake Chemical Co. Step-by-step photos show how to apply the flux and how to complete the soldering job. Comments from users who have worked with the flux also are included on the sheet.

Circle No. 210 on Reader Service Card

(More Useful Literature on page 82)

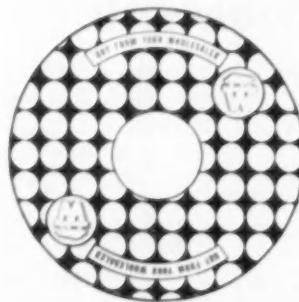
APRIL, 1956 • COMMERCIAL REFRIGERATION

Save

ON BIG JOBS

OR SMALL JOBS

USE WOLVERINE ROLL TUBE*



BUY FROM YOUR WHOLESALER

DIVISIONS OF
CALUMET & HECLA, INC.

CALUMET DIVISION
WOLVERINE TUBE DIVISION
CANADA VULCANIZER
& EQUIPMENT CO., LTD.
FOREST INDUSTRIES DIVISION
GOOBMAN LUMBER CO.



WOLVERINE TUBE

Division of Calumet & Hecla, Inc.

Manufacturers of Quality Controlled Tubing and Extruded Aluminum Shapes

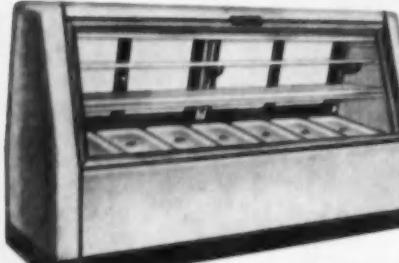
PLANTS IN DETROIT, MICHIGAN AND DECATUR, ALABAMA. SALES OFFICES IN PRINCIPAL CITIES.

EXPORT DEPARTMENT, 11 EAST 46TH STREET, NEW YORK 16, NEW YORK

Circle No. 61 on Reader Service Card

& AIR CONDITIONING • APRIL, 1956

MAKE
HAVE **MORE** MONEY
SATISFIED CUSTOMERS
Sell This Beautiful Top Quality
Pinnacle **DELICATESSEN**
DISPLAY CASE



MODEL DEL 528—8 ft. long

Exterior and interior of heavy gauge steel finished in gleaming white life-time porcelain. Entire cabinet covered with water-proof liner between steel shell and cabinet. Cast brass, chrome plated hardware. Display glass—triple glazed Thermopane. Insulation— $\frac{3}{4}$ " fibro-glass. Fluorescent

A few Pinnacle Territory Franchises are still available. Write or write today for full information and illustrated literature!

Pinnacle
EQUIPMENT CORPORATION
FLEETWOOD, PENNSYLVANIA
EXPORT DEPT.—39 Broadway, New York

You Cannot Beat Turbine-Type APCOS
for Small Capacity, High Head Duties

Capacities
to
150 G.P.M.

Heads
to
600 Ft.



APCO Single
Stage Turbine-Type Pump

Write for
BULLETIN
111

APCO
Turbine-Type
PUMPS

—ideal for "100%"
duties where small
capacities and
high heads pre-
dominate. Get
acquainted.

We invite Your
Special Pump Problems

Write for
CONDENSED CATALOG "M"

DISTRIBUTORS IN PRINCIPAL CITIES

AURORA® PUMP DIVISION
THE NEW YORK AIR BRAKE COMPANY

21 LOUcks STREET

AURORA • ILLINOIS



Circle No. 63 on Reader Service Card

USEFUL LITERATURE . . .

Continued from page 80

COLORFUL BOOKLET on its Scotsman Super Flaker line of crushed ice machines is offered by American Gas Machine Co., Div. of Queen Stove Works, Inc. Six-page booklet covers complete line of Super Flaker models, varying from maximum output of 200 lbs. per day to 2,000 lbs. per day. "Automatic Storage" models with self-contained stainless steel bins are shown, as well as "Continuous Flow" types that produce ice direct to bin, coolers or other containers. Mechanical features and other design advantages are also illustrated.

Circle No. 211 on Reader Service Card

HOW TO SELECT and specify cold storage doors is described in a new 20-page booklet issued by Jamison Cold Storage Door Co. The booklet contains information to help architects, contractors, and refrigeration engineers select and specify cold storage doors for all purposes. It is said to be the first booklet of its kind ever published. Booklet goes into temperatures, insulation, type of door swing and sill construction. One section deals with problems of moisture in its various forms, and another discusses doors for extra hard usage. Typical specifications for main door types are given along with a comprehensive check list of operating conditions and the door best suited to each.

Circle No. 212 on Reader Service Card

TO ASSIST ENGINEERS in their calculations of time-fill requirements, a series of specific time-fill diagrams are available from the Industrial Sales Div. of Hays Mfg. Co. Time-fill diagram is designated as Folder No. 209.

Circle No. 216 on Reader Service Card

(See page 112 for Air Conditioning Literature)

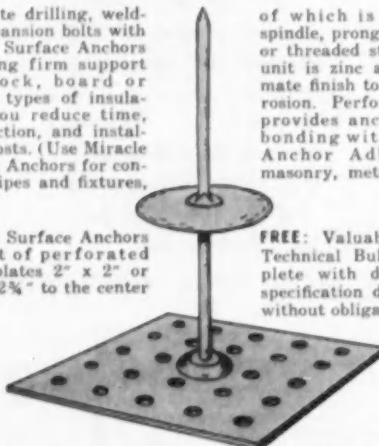
USE MIRACLE
SURFACE ANCHORS

WITH MIRACLE ANCHOR ADHESIVE

TO SPEED INSTALLATION
OF INSULATION

Eliminate drilling, welding, expansion bolts with Miracle Surface Anchors providing firm support for block, board or blanket types of insulation. You reduce time, construction, and installation costs. (Use Miracle Surface Anchors for conduits, pipes and fixtures, too!)

Miracle Surface Anchors consist of perforated metal plates 2" x 2" or 2 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ " to the center



of which is welded a spindle, prong, nail, bolt, or threaded stud. Entire unit is zinc and dichromate finish to resist corrosion. Perforated base provides anchorage by bonding with Miracle Anchor Adhesive to masonry, metal, plaster.

FREE: Valuable Anchor Technical Bulletin, complete with details and specification data. Yours without obligation. Write Dept. CR-4

MIRACLE SURFACE ANCHORS are manufactured by DEVICES, INC. a division of
MIRACLE ADHESIVES CORPORATION

214 East 53rd Street, New York 22, N. Y.

Circle No. 90 on Reader Service Card

APRIL, 1956 • COMMERCIAL REFRIGERATION



Bends as easy as

PIE*



* **REVERE**

DRYSEAL
COPPER
REFRIGERATION
TUBE

REVERE
COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801
230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Brooklyn, N. Y.; Chicago, Clinton and
Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.;
New Bedford, Mass.; Newport, Ark.; Rome, N. Y.
Sales Offices in Principal Cities, Distributors Everywhere.

Circle No. 65 on Reader Service Card

NEW PRODUCTS

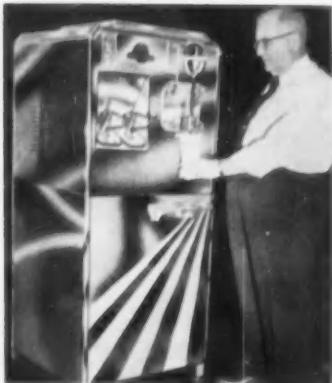
For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your request will be forwarded directly to the companies concerned.

(For Air Conditioning Products turn to page 114)

3-Flavor Shake Freezer

Product: "Super Shake" freezer can be used on single cylinder principle to make 3 flavors instantly.

Manufacturer: Port Morris Machine & Tool Works, Inc., New York, N. Y.



Features: Unit has 2 flavor jars built in and operator puts desired flavor into container, holding it to head of freezer for 3 seconds, and then serves finished milk shake. Flavor is whipped as shake is coming out of freezer. Machine is turned on by putting cup to head of freezer. Completely automatic, machine will operate as long as mix is kept in refrigerated tank. Freezer is designed to produce shakes from 25 to 29 F. Exterior is stainless steel along with beater and head. All parts are accessible from front for easy washing. Model is 26" x 26" by 24", with $\frac{3}{4}$ -hp beater motor and $\frac{3}{4}$ -hp compressor motor.

Circle No. 171 on Reader Service Card

Radio Microphone

Product: Model CX-40 improved, hand-held, mobile radio microphone.

Manufacturer: Radio Corporation of America, New York, N. Y.

Features: Device nullifies muffling effect of the hand, simplifies holding and hanging operations, and can be operated with equal convenience in either right or left hand.

Unit operates over frequency range of 200 to 3000 cycles per second; features positive-action push-to-talk trigger bar centered on elongated handle, and "packaged" carbon element for easy maintenance. Functionally styled in a high-impact plastic, the unit weighs 14 ounces, with cable, and measures 6-1/2" long, 2-11/32" wide, and 1-11/16" deep.

Circle No. 172 on Reader Service Card

Ice Maker

Product: Model B-200B "Crystal Tips or "Chips" ice maker.

Manufacturer: American Automatic Ice Machine Co., Faribault, Minn.

Features: Unit's two-in-one feature furnishes large "cube" or chip size ice at turn of switch. Full size ice possible whether room temperature is 60 or 110 F. Design removes air-cooled condenser from dusty



floor area. Standard bin stores full day's capacity. Model fits under counters or bars, occupying less than 6 sq.ft. Plumbing installation cost is cut with $\frac{1}{2}$ " copper tube water supply and $\frac{5}{8}$ " copper tube drain. Compressor is $\frac{1}{3}$ -hp full hermetic type and operates on 115 volt, 60 cycle single phase.

Circle No. 173 on Reader Service Card

Water Cooler

Product: "Cadet" model KT-2S drinking water cooler designed es-

specially for use in home or doctors' offices.

Manufacturer: Temprite Products Corp., Birmingham, Mich.

Features: Unit is 12" square x 36" high, finished in white enamel, and is standard kitchen counter height. Cooled spring water drawn from standard 2, 3, or 5 gallon bottle takes place of unpalatable drinking water which may be high in iron or sulfur content. Water reservoir may, if necessary, be filled from pitcher.

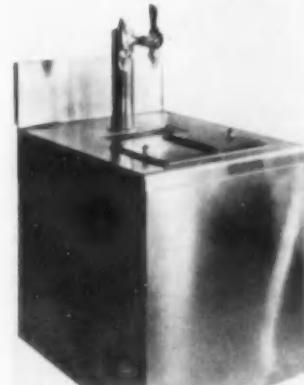
Circle No. 174 on Reader Service Card

Double-Duty Unit

Product: Combination ice chest and mixed drink dispenser.

Manufacturer: Dunhill Soda Fountain Corp., Brooklyn, N. Y.

Features: For under-counter or back-bar installations, dispenser



serves one or two mixed drinks. Chest contains syrup tank and soda coils cooled by ice cubes; holds approximately 150 lbs. of ice. Dimensions are 24 x 24 x 36" high. Top and front of unit are stainless steel. Pure vegetable corkboard insulation used throughout.

Circle No. 175 on Reader Service Card

Locking Device

Product: Non-electrical locking device for rivet coolers.

Manufacturer: Webber Engineering Corp., Indianapolis, Ind.

Features: Temperature controlled device aids in quality control of aluminum rivets by locking lid of low-temperature cabinet when temperature within cold chamber rises above pre-set level. Rivets must be stored at 30 F after annealing to preserve softened condition so as to prevent splitting and breaking when pressure is applied. Product automatically locks freezer lid to prevent use of rivets if temperature has risen above pre-set critical level. Unit remains locked even if temperature is lowered to normal correct operation temperature. Key retained by

For Looks • Long Life • Low Installation Cost

CHOOSE THE **LARKIN** (YEAR 'ROUND) AIR CONDITIONER

5 MODELS—2 TO 10 TONS



Ideal for:

STORES BARS
SHOPS GRILLS
OFFICES RESTAURANTS
BAKERIES FLORISTS
CLINICS

Cools or heats • De-humidifies
Filters • Circulates Air

Here is Larkin's answer to the ever-increasing demand for year-round comfort conditioners. When you see it . . . when you compare it . . . when you price it . . . then you will understand why we say it is another triumph for Larkin—manufacturer of air-conditioning equipment for nearly 25 years.

See your wholesaler today for complete information about the all-new Larkin Comfort Conditioner. Write us for the name of the one nearest you—or for descriptive literature.

FEATURES THAT SELL AND SATISFY

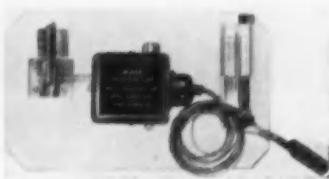
- Larkin air-conditioning coil—eight fins per inch, continuous fin, staggered tubes, for highest efficiency and lowest operating cost
- Compact cabinet, all-steel, rust-resistant, beautifully finished with baked-on enamel
- Fiber-glass insulation
- Pressure-type, centrifugal, dynamically balanced, forward curved fan wheels
- Frictionless, self-aligning bearings completely encased in Neoprene
- Resilient base motors on adjustable mounts
- Two-direction, adjustable discharge grille
- Easily removed, throw-away filters
- Heating coils for use with steam or hot water
- Slotted hanger bars
- Easily installed, easy to service
- Backed by the engineering skill and manufacturing reputation of Larkin Coils—one of America's leading makers of commercial and industrial refrigeration and air-conditioning equipment



"Originators of the Cross Fin Coil"

LARKIN COILS

519 MEMORIAL DRIVE, S.E., ATLANTA, GEORGIA



supervisory personnel must be inserted in lock and turned to release slidebolt and open lid. Materials can neither be placed in or removed from freezer if specified temperature limitation within storage chamber has been exceeded.

Circle No. 176 on Reader Service Card

Combination Units

Product: Receiver-filter-drier-liquid indicator combinations.

Manufacturer: Remco, Inc., Zelienople, Pa.

Features: Filter-drier end of combination units consists of glass fibre depth filter and molded drying element. Liquid indicator used is hermetically sealed to prevent possible leak in system. Receiver is made of steel. These units are available with top inlet-bottom outlet or bottom inlet-top outlet connections. Filter removes foreign matter from refrigerant stream. Drier removes moisture both chemically and physi-



ally, absorbing acids to level below possible danger from corrosion. Chemically absorbed moisture is retained in drying element even though refrigerant temperatures rise to 180 F. Design of flow channels and flow gradulators eliminates pressure drop through filter-drier. High pressure Pyrex glass viewing tubes used in liquid indicators have safe working pressure of 500 psi with 5 to 1 safety factor.

Circle No. 177 on Reader Service Card

**Now you can offer
100% fail-safe
protection
for all automatic defrosting**

with

PARAGON
TPT
Time
Pressure
Temperature
TPT
Temperature

**"de-frost-it" with
remote control**

Here's refrigeration protection at its best — with a nice profit for you! Saves customers worry about costly food spoilage... ends guessing and call-backs for re-setting.

Key to 100% fail-safe defrosting of any low temperature or normal temperature system is the built-in 45-minute termination dial. If the pressure switch is not actuated for some reason,



a pin on the dial automatically terminates the defrost cycle. Action is positive, sure! Guards against low ambient, gas shortage or inoperative condenser. Protects against failure of pressure/temperature cut-in switch or improper defrosting. Install a TPT "de-frost-it" on your next job. Order from your Refrigeration Equipment Wholesaler or write Dept. 1688 for Bulletin.

**AUTOMATICALLY
COMPENSATES DEFROST
TO LOAD AND ATMOSPHERIC
CONDITIONS**

Once set, length of defrost period is 100% self-adjusting. Seasonal weather changes have no effect. Two models available: TPT 303 (hot gas) and TPT 305 (electric heat). Both units are remotely controlled by pressure switch or thermostat. Set for 1 to 8 defrost cycles per day.

**One more
Paragon profit
opportunity!**

PARAGON ELECTRIC COMPANY

TWO RIVERS, WISCONSIN
WORLD'S FOREMOST MANUFACTURER OF TIME CONTROLS.

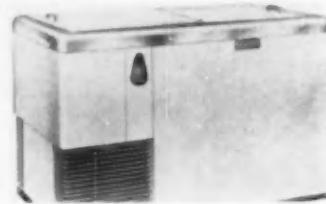
Circle No. 67 on Reader Service Card

Cafeteria Cooler

Product: "Beverage-Air" cafeteria type cooler.

Manufacturer: Punxsutawney Co., Punxsutawney, Pa.

Features: New cooler offers more capacity per square foot of floor space. Convenient for easy



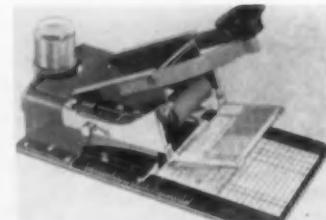
serving or self-service. Stainless steel is used where wear is heavy and appearance is important. Adjustable bottom racks come with each cooler so cabinet can be used as shallow or deep type. Design incorporates low velocity forced-air cooling used in open-display coolers.

Circle No. 178 on Reader Service Card

Addressing Machine

Product: Model 60 Master Addresser duplication machine.

Manufacturer: Master Addresser Co., Minneapolis, Minn.



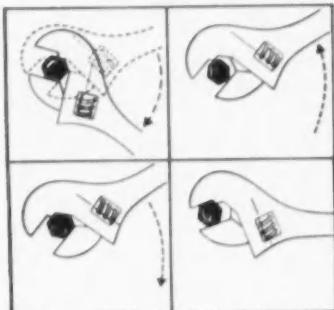
Features: Machine writes names and addresses or other repetitive data (up to 13 lines 3" long) on wide variety of accounting forms.

writing up to 100 times from single typing. Stroke of handle may write over 400 typewritten characters. Prints are made from paper master prepared in office typewriter. Master can be filed for future use. Model is 7" x 13". Prints are made by same rotary printing action used in conventional liquid duplicators.

Circle No. 179 on Reader Service Card

Adjustable Wrench

Product: "Handi-Spin" adjustable wrench providing ratcheting action without ratcheting device.



Manufacturer: Tedd Co., Rockford, Ill.

Features: Re-designed wrench allows tool to remain on hex head nut all the time while tightening or loosening nut. Upper jaw of tool allows for secure bite on nut, yet releases bite when pushed upward. Constant pumping action is possible. Despite this novel action, wrench works in every way as a regular wrench, without slipping, when the forward part of the jaws are used.

Circle No. 180 on Reader Service Card

Self-Sealing Coupling

Product: Coupling designed for use with Freon 12 and 22.

Manufacturer: Aeroquip Corp., Jackson, Mich.

Features: Coupling is available in $\frac{1}{4}$ " through $1\frac{1}{2}$ " sizes, and provides leak-proof seal, without inclusion of air upon disconnection or connection. Condenser and evaporator units and connecting tubing are pre-charged with Freon at factory, and sealed with coupling halves. Lines easily are connected by mating proper coupling halves.

Circle No. 181 on Reader Service Card

Display Case

Product: Single and double duty display cases for food products.

Manufacturer: Frigid Igloo Mfg. Corp., Yonkers, N.Y.

Features: Models are steel welded, acid resistant, and have all porce-

Searching for the
BEST in
COPPER
TUBING?

If your product requires quality copper tubing — tubing manufactured to the most precise tolerances . . . then specify United! From a quality-controlled tube mill you can depend on clean, uniform, copper tubing held to your strictest specifications for temper and size. Look to United for the answer to all of your tubing problems.

(Aluminum, Copper or Brass Alloys)

For brazing — United's Pheson brazes at the lowest practical brazing temperature, yet forms super strength joints.

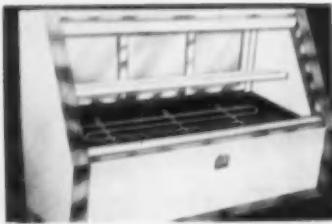
UNITED WIRE AND SUPPLY CORP.

Providence 7, Rhode Island



COPPER, BRASS
AND ALUMINUM
WIRE AND TUBING,
AND BRAZING ALLOYS

Circle No. 68 on Reader Service Card



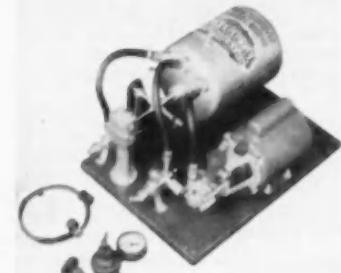
lain exterior, interior shelves. Indirect "EZ change" fluorescent lighting under top and bottom chrome sills, eliminates bulb heat from refrigerated areas. Triple thermopane front, double thermopane inserts en-

cased in rubber channels help eliminate condensation in stainless steel clad sliding doors. Single duty display case has deep water tight porcelain bottom pan with bare tube coil and drain. Display cases are available in 6, 8, 10, and 12' lengths, 50" high and 33" deep. Single duty units available are remote and self-contained.

Circle No. 182 on Reader Service Card

Manufacturer: Fischman Co., Philadelphia, Pa.

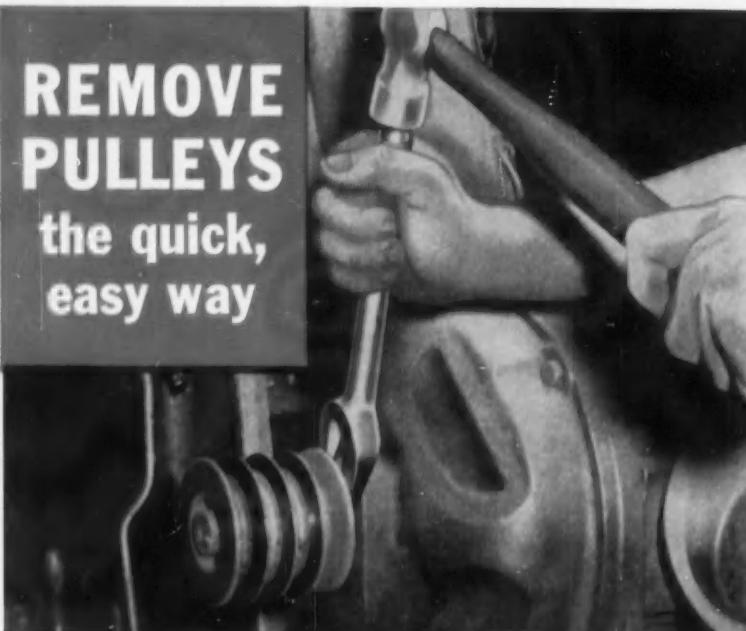
Features: Carbonator employs jet nozzle atomizing system for maximum carbonated gas absorption



and twin filtration system to screen impurities. Unit consistently delivers 60 gallons of soda water per hour. Utilizes an all-stainless-steel tank with welded stainless steel fittings to eliminate gas and water leakage. Powered with 1/4-hp motor with built-in overload relay. Overall weight is 60 lbs.

Circle No. 183 on Reader Service Card

REMOVE PULLEYS the quick, easy way



BONNEY P-319 FORKED-WEDGE SEPARATOR

Especially useful where limited space makes the use of a screw-type puller impossible. The Forked-Wedge Separator is inserted between the pulley hub and the compressor or motor housing after removing the set screw. A few taps on the end of the separator brings the pulley off the shaft. A Bonney Forked-Wedge Separator should be in your tool box.

Bonney makes a complete line of tools designed to meet the specific needs of refrigeration and air conditioning service men. Ask your jobber today.

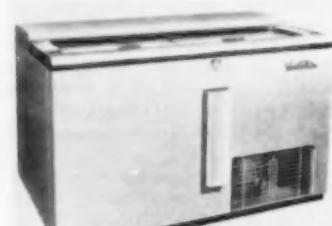


BONNEY FORCE & TOOL WORKS • ALLENTOWN • PENNSYLVANIA
Circle No. 69 on Reader Service Card

Beverage Cooler

Product: Dry storage "Flat Top" beverage cooler for under-counter use.

Manufacturer: Victor Products Corp., Hagerstown, Md.



Features: Cooler in three sizes, holds from 9 to 22 cases of 12-oz. bottles or 14 to 33 cases of six-oz. bottles. Complete with hermetically sealed unit and refrigeration system for trouble free plug-in operation. Top and lids are of stainless steel and exterior is of baked metallic grey enamel.

Circle No. 184 on Reader Service Card

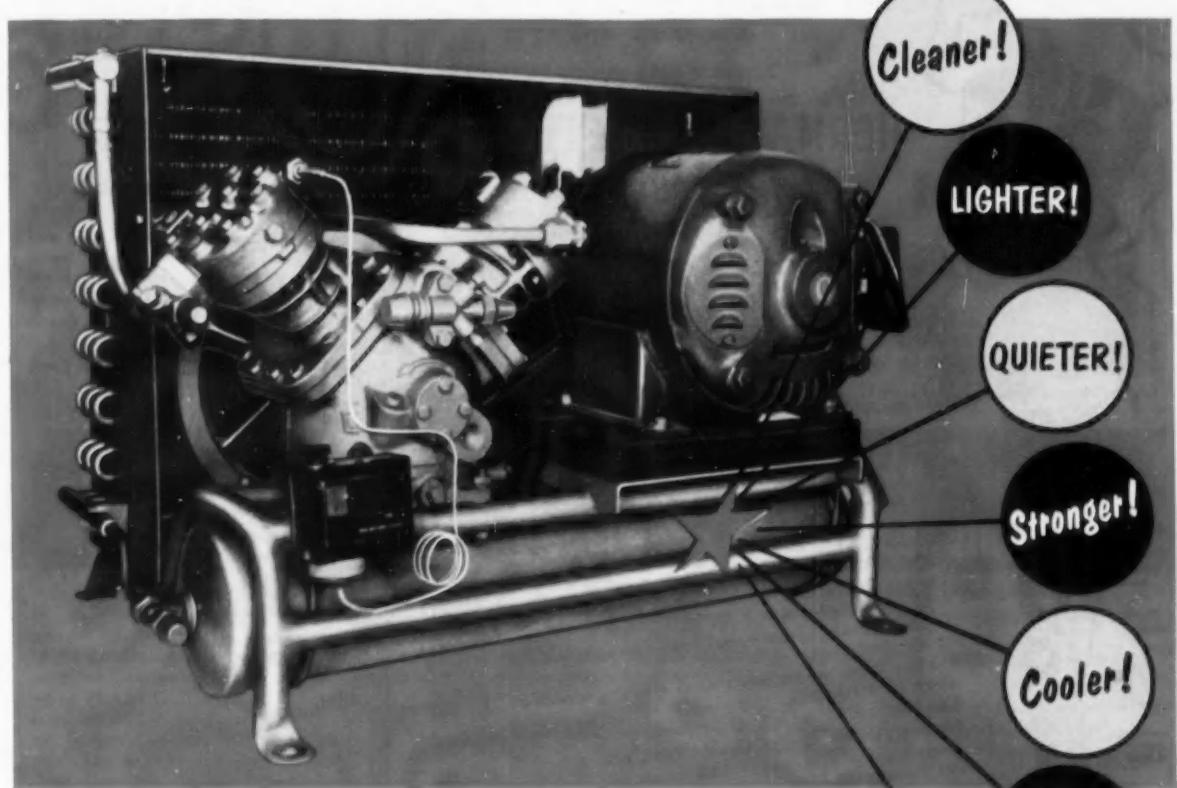
Island Display Case

Product: Model ID58M island display case.

Manufacturer: McCray Refrigerator Co., Inc., Kendallville, Ind.

Features: For refrigeration and display of dairy items and pre-packed meats, case is self-contained and by use of rollers is completely portable. Defrost water is automatic.

NOW... FROM KELVINATOR! IMPROVED CONDENSING UNITS WITH NEW TUBULAR BASES



Here is a tremendous new improvement in Kelvinator open-type condensing units! New tubular-type bases give you many plus benefits that now make Kelvinator, more than ever before, *your best buy*. Look at the heavy-duty construction of the Model OA-100 pictured above . . . check again the extra value features you get with Kelvinator's improved tubular-base models.

Kelvinator offers you a complete line of precision-built air-cooled, water-cooled, combination, and truck-type condensing units . . . hermetically sealed condensing units . . . and hermetic compressors for household and commercial cabinet use.

See your Kelvinator wholesaler, or write Kelvinator Division, American Motors Corporation, Detroit 32, Michigan.

Kelvinator

Division of American Motors Corp., Detroit 33, Mich.

American Motors Mfgns

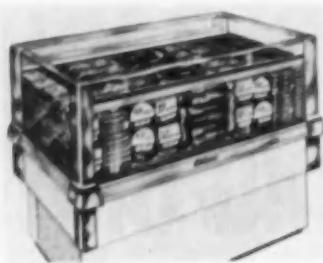


More for Americans

SPECIALISTS IN REFRIGERATION SINCE 1914

Circle No. 70 on Reader Service Card

& AIR CONDITIONING • APRIL, 1956



ally evaporated. Open top and 14" two-pane thermopane glass on all four sides makes product readily visible. Unit has shelf area of 8.5

sq.ft. and refrigerated capacity of 6.4 cu.ft. Measuring 57 5/16" x 33 5/16", case occupies 11 sq.ft. Compressor is 1/2-hp semi-hermetic unit serviceable at any time in field.

Circle No. 185 on Reader Service Card

40 Cu.Ft. Reach-In

Product: Vimco Model RS-40-S reach-in refrigerator.

Manufacturer: Victory Metal Mfg. Corp., Plymouth Meeting, Pa.

Features: Unit has interchangeable interiors that are adjustable on 1" centers to take any combination

of bakers pan slides, stationary or pull-out meat rails, stationary or pull-out shelves and refrigerated drawers. No tools needed to change interior accessories. Ball-bearing pull-out shelves allow easy access to items stored at rear. 100% all-metal construction; automatic self-defrosting; sanitary wipe-out bottom; built-in cylinder locks and die-cast handles on all doors. Capacity 40 cu. ft. Has 1/3 hp hermetic unit which slides out for easy servicing. Case



number 2 in a series of ads to help you better understand the servicing of hermetic compressors.

HERMAN HERMETIC says

"Your service warranty is valuable to you and your customer"

Your Tecumseh service warranty protects both you and your customer from loss due to mechanical failures. Assure yourself of maximum protection by following these simple rules:

1. Always use the exact compressor or electrical part replacement as specified by the factory.
 2. Do not charge an F-12 compressor with F-22 or an F-22 compressor with F-12.
 3. Do not leave a system open to the atmosphere longer than necessary.
 4. Do not break solder joints until system pressure is down to 0 p.s.i.g.
 5. Use hard solder for all solder joints.
 6. Do not use any kind of liquid drying agents.
 7. If moisture is suspected, install a suction line dryer and replace the liquid line dryer with a new one.
 8. If the compressor motor burns out, the system must be flushed with a good solvent to remove acids and sludge.
 9. Check the entire system for leaks with a leak detector or Halide torch.
- Follow these rules and you will avoid the major reasons for compressor failure.

front, sides, doors, bottom grill and interior of stainless steel; exterior top, back, bottom of corrosion-resistant aluminum. Available as pass-through unit. Width 50 1/4", depth 33 1/2", height, 72 3/4".

Circle No. 186 on Reader Service Card

Adjustable Height Tripod

Product: "Magic-Pole" tripod for lifting loads.

Manufacturer: B. E. Wallace Products Co., Exton, Pa.

Features: "Magic-Pole" tripod has telescopic legs, adjustable by 6" steps to permit setup on ramps, platforms, or rough ground. Can be used indoors or out. Model shown extends to working height of 10' 3" yet closes to length of 6 1/2' for handling and storage. Unit is said to be capable of handling loads up to 3 tons. Special screw in "spike" on base permits firm setups on concrete, wood block, asphalt, soil or gravel.

Circle No. 187 on Reader Service Card

Floor-Mounted Unit

Product: "Recold" floor-mounted refrigeration unit for cold storage warehouses and other large space applications.

Manufacturer: Refrigeration Engineering, Inc. Los Angeles, Calif.

Features: Units are available for high or low temperature use, with or without defrost. Low temperature models can be obtained for Freon, direct expansion ammonia or flooded ammonia with water defrost, with coiled pan for hot gas, or without defrost. Low temperature capacities include seven sizes from 19,5000 Btuh to 151,000 Btuh at 10 degrees



TECUMSEH PRODUCTS
TECUMSEH, MICH.
MARION, OHIO

EXPORT DEPT.:

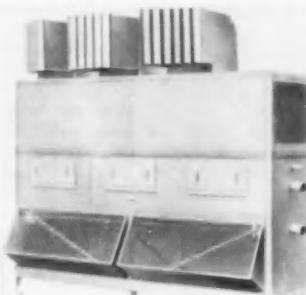
P. O. Box 2280, 24530 Michigan Ave., W. Dearborn, Mich.

Circle No. 71 on Reader Service Card

World's Largest
Producer of
Compressors for the
Refrigeration Industry

Circle No. 73 on Reader Service Card

t.d. In water defrost floor units, tap water running over coils removes frost fast enough that product freezing continues without interruption.



High temperature units for Freon or direct expansion ammonia are available in 14 sizes from 19,000 Btuh to 181,000 Btuh. For easy service, features include all external grease fittings, motor mounted on adjustable rails, all outside connections, and large access doors to sprays and coil.

Circle No. 188 on Reader Service Card

Reach-In Wall Case

Product: Model EWS-72, self-contained, 6' reach-in wall case.

Manufacturer: Evans Mfg. Corp., Mount Vernon, N. Y.

ROTARY SEAL Replacement Units

EASY TO
INSTALL
ECONOMICAL
EFFICIENT IN
OPERATION

The original replacement units—
performance-proved in many thou-
sands of installations
during almost a
quarter century.



AT ALL
LEADING
JOBBERS



Available in a
wide range of
sizes for Com-
mercial, Semi-
Commercial,
Air Conditioning
and Household
Refrigerator Compressors.

"Seal with Certainty!"

2020 NORTH LARRABEE ST.
CHICAGO 14, ILLINOIS, U.S.A.

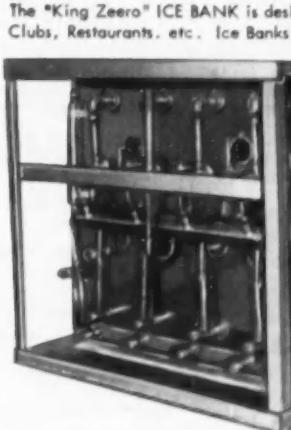
CANADIAN AGENT: 2025 ADDINGTON AVE., MONTREAL 28, QUEBEC

"King Zeero's" Sweet Water ICE BANKS offer ICE - CONCENTRATED Refrigeration for Air Conditioning

CONTINUOUS RIFLED GALVANIZED COILS
EXPANSION VALVE CONTROLLED

32° - 34° COLD
ICE WATER

DESIGNED FOR USE WITH:
FREON — METHYL CHLORIDE — AMMONIA



MODEL A-7
"KING ZEERO"
ICE BANK

CAPACITIES - 500 lbs. to 30,000 lbs. (72,000 B.T.U.'s to
4,320,000 B.T.U.'s) in a single unit. Multiple units may be installed.

THE KING ZEERO COMPANY

4300-14 W. Montrose Ave., Chicago 41, Ill.



Circle No. 72 on Reader Service Card

& AIR CONDITIONING • APRIL, 1956

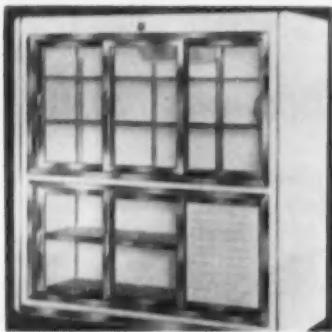
The "King Zeero" ICE BANK is designed to deliver tons of 32 to 34 F. ice water for recirculation through air cooling coils. Peak loads many times compressor capacity are easily handled.

- DIRECTED COURSE OF WATER travels with "built-in" agitation.
- NO MECHANICAL AGITATION REQUIRED.
- LARGE WATER COMPARTMENTS spaced on 11" and 12" centers.
- 33% EXTRA ICE CAPACITY safely attained without freezing up.
- ICE IS "BURNED OFF" PLATE COILS progressively, exposing prime and secondary surface for maximum flash cooling capacity.
- ICE THICKNESS automatically controlled - eliminates "freeze ups."
- 94 SIZES to fit space requirements. Other designs for special applications. **MAIL COUPON TODAY**

King Zeero Co., 4302 W. Montrose Ave., Chicago 41, Ill.

Please send me your new ICE BANK Catalog.

Name _____
Address _____
City _____ State _____



Features: Case has baked enamel interior and exterior. Front incorporates three glass sliding doors on top and two sliding doors on bottom. Inside is illuminated by fluorescent bulbs. Wire shelves permit maximum display. Product is equipped with even-air blower system for balanced refrigeration.

Circle No. 189 on Reader Service Card

Precision Switch

Product: "TyniSwitch" precision snap-action switch of special interest to original equipment manufacturers.

Manufacturer: TyniSwitch Dept., Detroit Controls Corp., Bridgeport, Conn.

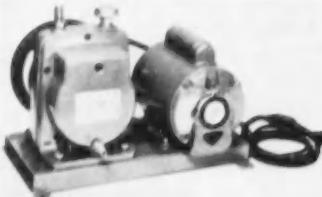
Features: Smaller than any other unit of equal rating, product is 1-5/8" long, 9/32" thick, and 7/16" wide. Connecting elements in spring release mechanism are eliminated. Only one moving part. Positive snap action is provided as only single stamping is used. Force and movement are held to very close tolerances, and patented blade design produces fast snap operation with positive maintenance of contact.

Circle No. 190 on Reader Service Card

High Vacuum Pump

Product: "Hyvac 2" pump delivers free air displacement of 20 liters per minute.

Manufacturer: Central Scientific Co., Chicago, Ill.



Features: Unit is capable of pumping from atmospheric to ultimate pressure in about five minutes and delivers guaranteed ultimate

vacuum of 0.1 micron. Pump and motor together measure 10 by 15" overall, with height 11". Other features: "easy view" oil level window; convenient oil drain; and machined cast iron pulleys, individually balanced. Six motor arrangements to meet most voltage requirements are available. In addition to the model with 115 volt, 60 cycle motor, 230 volt, 60 cycle; 115 or 230 volt for 50 cycles; explosion-proof (Type 10); and 3-phase (Type 18) are available. New model is companion pump to the larger Hyvac 7, introduced several months ago.

Circle No. 191 on Reader Service Card

Water Cooler

Product: New dual-control water cooler.

Manufacturer: Sunroc Corp., Glen Riddle, Pa.

Features: Dual-control water cooler features hand-foot operation. Water can be dispensed by either new push-button bubbler or by slight pressure on heavy-duty foot pedal which is removable if hand operation only is desired. Pedal is constructed of extra heavy gauge stainless steel, and may be raised for cleaning of floor areas around base of cooler. Cooler is said to be un-



Positive
NO LEAK
Seal for:
OIL
GAS
STEAM
FREON
WATER
AMMONIA
PROPANE
BUTANE
GASOLINE
ETC.



LAKE CHEMICAL CO.
3107 W. Carroll Ave., Chicago 12, Ill.

Circle No. 115 on Reader Service Card

Get it in the convenient, economical 12-stick package. Your supplier has PIPETITE Stik . . . or write us for a sample.



LA CROSSE
DRY STORAGE BOTTLE COOLER

**IT'S NEW
IN EVERY SIZE..
FOR EVERY USE**

Here's the last word in sharp appearance, dependable performance and top engineering features . . . all combined in the new La Crosse Bottle Cooler. New features galore make this your ideal Cooler for Bars, Hotels, Clubs, Taverns, Resorts, Hospitals, Schools.

WRITE TODAY — FOR COMPLETE INFORMATION.

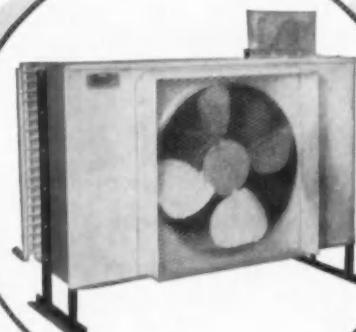
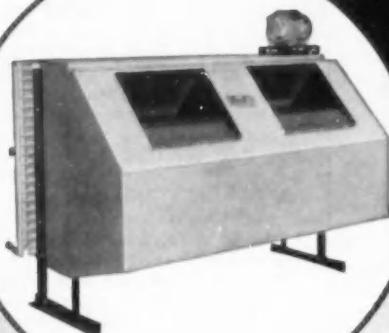
LA CROSSE COOLER COMPANY
3002 LOSER BOULEVARD SOUTH, LA CROSSE, WISCONSIN



Circle No. 64 on Reader Service Card



NEW 'BC' UNITS EXTEND RANGE OF BUSH AIR COOLED CONDENSERS to 20 TONS...



NEW Bush 'BC' Blower Condensers permit air conditioning and refrigeration systems to operate without water... provide the answer to excessive water costs, limited supply, excessive impurities or disposal problems.

Available in capacities up to the 20 Tons, new Bush 'BC' Blower Condensers feature low noise level... quiet operation.

Patented Inner-Fin coil construction, a Bush exclusive, makes these the most compact units on the market. Units are easy to install, have rugged all-steel cases with durable rust-resistant finish... are available arranged with either blower fan or propeller fan.

The BUSH line of water-savers, most complete in the industry, also includes:

'CDT' COPPER DECK COOLING TOWERS with all copper decking. 'IEC' INNER-FIN EVAPORATIVE CONDENSERS featuring patented inner-fin coils. Both units available with blower or propeller fan. Capacities from 3 to 90 Tons.

'PFC' PROPELLER FAN CONDENSERS — Two basic models, 2.2 Tons and 3.3 Tons can be combined by mounting in banks to obtain any desired tonnage.

'PS' PRESSURE STABILIZERS — automatically maintain satisfactory head pressure when air cooled condensers operate outside in low ambient temperatures.



Write direct for complete information or contact your experienced BUSH representative for valuable engineering and application assistance.

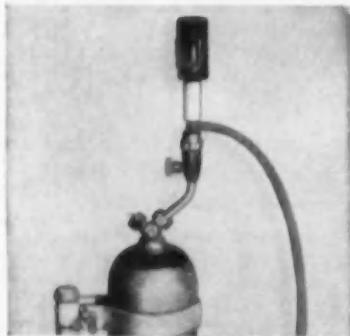
BUSH MANUFACTURING COMPANY • West Hartford 10, Conn.

RIVERSIDE • CALIFORNIA

BUSH

Circle No. 74 on Reader Service Card

FOR Supersensitive,
Dependable,
Leak Detecting . . .
Use a
PREST-O-LITE
Trade-Mark
Leak Detector Outfit



Outfit includes leak detector stem, 3 ft. of suction hose, and tank adapter with needle valve for economy and exact flame adjustment.

Even the most minute leaks of halide refrigerant gases can't escape this extremely sensitive, leak detector outfit. Just attach to the valve of a lightweight MC acetylene tank. Detached from tank, this unit fits handily into tool box. Ask your jobber for a demonstration. Or write LINDE AIR PRODUCTS COMPANY, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y. In Canada: Union Carbide Canada Limited, Toronto.

GET IT
FROM
YOUR
LINDE
JOBBER



"Prest-O-Lite" and "Linde" are trade-marks of Union Carbide and Carbon Corporation.

Circle No. 75 on Reader Service Card
94

affected by power failure. Can also be supplied on order with glass-filler independently operated by push-button control.

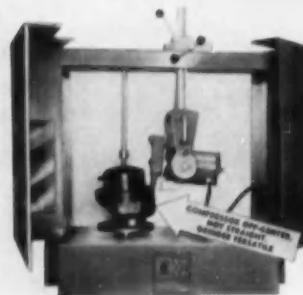
Circle No. 192 on Reader Service Card

Hermetic Unit Opener

Product: Semi-automatic hermetic compressor opener.

Manufacturer: Frankell Mfg. Co., New York 59, N. Y.

Features: Unit can open any hermetic compressor up to 20" in diameter, regardless of location of



weld. Needs no extra equipment. Hermetically sealed, opener automatically stops at pre-set time. Of heavy gauge metal and iron castings, exterior front has two shatterproof

windows for operation check. Machine requires no maintenance. All bearings are grease packed. GE electric motors are used. Plugs into any outlet. Full load is 11 amp, 115 volts.

Circle No. 193 on Reader Service Card

Remote Thermometer

Product: "Tempscribe" Model TTR recording thermometer with temperature-sensitive bulb and 6' of flexible capillary tubing for remote reading.

Manufacturer: Bacharach Industrial Instrument Co., Pittsburgh, Pa.

Features: May be placed outside of refrigerator, freezer, cooler, etc. at any viewing point, with tubing inserted between door and jamb or cover and frame. Door may remain closed with cover on for observing temperature inside unit tested. Pen operating mechanism, to which tubing is connected, is housed in unit's removable door. Pen can be set to conform to test model by adjusting screw. Unit can be converted to different temperature ranges by replacing door. Two ranges for remote temperature recording are available: 30 F to 50 F and 10 to 90 F. Chart is driven by a spring-wound clock movement, 24 hour rotation. Doors are available

RECTORSEAL No. 2

highest quality sealant
lowest cost
finest package



What a combination to beat. Nothing has been spared to make Rectorseal No. 2 the finest compound available for preventing leaks on refrigeration installations. Yet the price is from 20% to 40% lower.

The handy tube has a nozzle tip applicator for easy, clean application. Each tube individually packed in a sturdy cylindrical screw top fiberboard carton.

This in the tube, Rectorseal No. 2 spreads smoothly without waste. It thickens to a plastic elasticity in the joint to positively seal against leaks. Insoluble in all refrigerants (gas or liquid) and in oil and water.

Write today for generous free sample of Rectorseal No. 2.

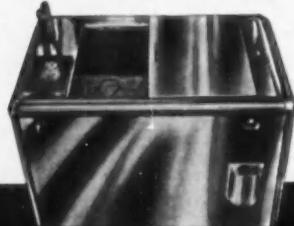
RECTORSEAL Dept. T

2215 Commerce Street, Houston 2, Texas

RECTORSEAL
NUMBER TWO

Circle No. 77 on Reader Service Card

BEVCO



QUALITY COOLERS YOU
CAN FIT INTO YOUR LINE
AND SELL AT A PROFIT

ACCESSORIES



SINGLE
WATER
FAUCET



GRILL
DIVIDERS



DOUBLE
FAUCET



HEAVY
DUTY
CASTERS

You sell quality, trouble-free cooling in these electric units that operate wet or dry. In 3 sizes . . . 4, 5, 6 ft. Unobstructed interiors. Baked Enamel finish for beauty and sanitation.

SEND FOR CATALOG C-WI

The BEVCO Company, Inc.

3316-18 S. BROADWAY • ST. LOUIS 18, MO

Circle No. 76 on Reader Service Card
APRIL, 1956 • COMMERCIAL REFRIGERATION



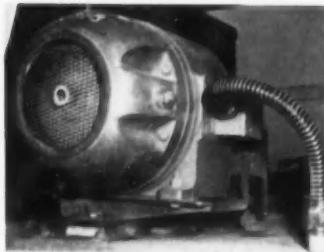
with built-in, bi-metal elements for recording ambient temperature or with electro-magnetic armature for recording cycling and total running time of motor, heater, etc. For ambient temperature recording, 10 different ranges are available from minus 30 F to 120 F.

Circle No. 194 on Reader Service Card

Motor Base

Product: No. 500 "Tens-A-Matic" motor base.

Manufacturer: Murray Equipment Co., Inc., Detroit, Mich.



Features: Product requires no regular maintenance for proper drive belt tension. Base automatically takes up belt stretch and absorbs starting loads. Base cuts belt-changing time into a few minutes. To replace belt, motor is tilted forward and blocked. Unit eliminates motor or belt realigning—automatically adjusting new belts to proper tension. Available for motors of all sizes from fractional-hp units to 200-hp models. Circle No. 195 on Reader Service Card

SERVEL NAMES BIRMINGHAM FIRM

Hardy Corp., Birmingham, Ala., has been appointed distributor for Servel air conditioning products in the Birmingham trading area. The firm will handle Servel's complete line of units ranging in capacity from 2 to 25 tons, for residential, commercial and industrial installations.

**no cutting!
no guesswork!
no adjustment!**

WATSCO STRAIN-O-KAP

THE MODERN
REFRIGERANT METERING DEVICE
A SUPERIOR STRAINER CAPILLARY TUBE
COMBINATION WITH EXCLUSIVE TRIPLE
STRAINING ACTION



COMPLETE—ALL IN ONE FOR SEALED AND OPEN UNITS

Strain-O-Kap is a scientifically designed precision metering device that will operate efficiently regardless of the make or model or refrigerant used. Install Strain-O-Kap on any equipment* and get 100% results.

THE RESTRICTOR TUBE FOR S-1 AND S-2

Hard tempered, seamless copper tubing, precision drawn and individually tested for proper pressure drop. The outlet of the restrictor tube is .081 O.D. and can be installed either by soldering or using a standard capillary tube fitting.



Part No. S-1



THE STRAINER FOR S-1 AND S-2

Three scientifically designed monel screens graduated 60, 80 and 120 mesh to strain the refrigerant and break up the turbulent and erratic flow of globules of oil that travel along with the refrigerant. This action results in both a quiet efficient supply of refrigerant, together with a pressure drop so desirable in capillary systems.

S-1 Strainer is made of hard drawn spun copper tubing with solder fittings for 1/4" O.D. tube.

S-2 Strainer's non-porous brass shell may be disassembled and cleaned. Inlet is provided with a standard 1/4" male flare connector.

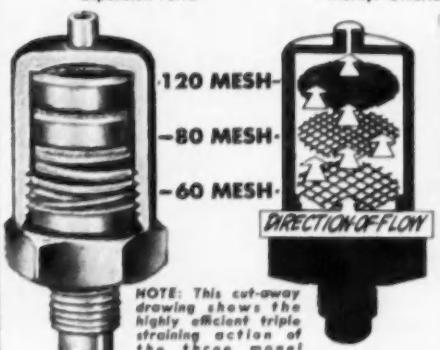


Part No. S-2

REPLACES

- High side float
- Low side float
- Restrictor tube
- Original capillary tube
- Expansion valve

- SO₂ systems to Methyl Chloride
- SO₂ systems to F-12
- Methyl Chloride to F-12



* FOR SEALED AND OPEN UNITS

- Refrigerator 1/20 to 1/5 HP inclusive
- Water coolers 1/4 HP and less
- Freezer cabinets 1/3 HP and less
- For use with following refrigerants: SO₂, Methyl Chloride, F-12, F-21, F-22, F-114, Carbon and Methyl Formate.
- Just One Size for All Units*
- Three Monel Mesh Strainers
- Less Capillary Noise
- Individually Tested and Calibrated for Proper Pressure Drop
- Precision, Hard Drawn Capillary Tubing
- Baked and Individually Packed in Heat Sealed, Moisture Proof Containers
- Guaranteed Satisfaction

NEW ADDRESS: 1020 EAST 15TH STREET
HIALEAH, FLORIDA



WAGNER TOOL & SUPPLY CORP. REFRIGERATION PARTS & TOOLS

Circle No. 78 on Reader Service Card

ANSUL WORKERS FINISH SECOND "PERFECT" YEAR

For the second year in a row, employees of Ansul Chemical Co. have chalked up a perfect safety record, thereby earning an extra day's pay.

The last lost-time accident in the plant occurred Nov. 24, 1953. Since then, the 239 hourly plant employees have worked 1,904,743 man hours without a lost-time accident.

FRIGIDAIRE IN NEW GM TRAINING CENTER

New service training facilities for Frigidaire dealers and servicemen in the Pittsburgh area were opened recently with the dedication of the General Motors Training Center there.

This marks Frigidaire's first participation in the GM training center program, the 30th in a nationwide network of such facilities. Plans are underway to add Frigidaire service schools to some of the other centers.

FRICK DEALER DIES

Charles LeRoy Spoonhour, general manager of Lewis Refrigeration and Supply Co., Seattle, Wash., sales representative of Frick Co., died recently of a heart attack at Pendleton, Oregon. Spoonhour had been associated with Frick Co. for over 20 years, before going to Seattle in 1946. He is survived by his wife and a brother.

MORE AIR CONDITIONING IN PENN '56 "SHOW"

More emphasis on the rapidly expanding air conditioning market for control equipment keynotes the 1956 edition of "Controlorama", Penn Controls' educational road show which will tour 22 eastern and northeastern U. S. cities this spring. The show will start in Pittsburgh on April 3 and tour Pennsylvania, New York state and New England before winding up in Cleveland on June 4.

Air conditioning, refrigeration and heating men in 20 southeastern states saw the 1955 version of the Penn Controls show. This

year's show again uses "live" operating panels and wide screen color projection in getting its points across.

Controlorama starts at 5:30 p.m., local time, in each city, with both cooling and heating presentations combined in one evening. A free dinner is served the audience and additional refreshments are provided after the program. R. H. Luscombe, Penn's marketing manager, said that program is arranged to allow those attending to come directly from work.

The early starting time also allows for a service roundup and question-answer session after the formal program.

The show is sponsored in each city by leading wholesalers, who issue invitations to all trade people in the area. Spring schedule is as follows:

Pittsburgh, April 3; Bedford, Pa., April 4; York, Pa., April 6; Baltimore, April 9; Philadelphia, April 11; Newark, April 12; New York City, April 16; Brooklyn, April 18; Hempstead, N. Y., April 19; New Haven, April 23; Hartford, April 24; Springfield, Mass., April 26; Providence, April 30; Boston, May 1, and Portland, Maine, May 3.

Albany, May 21; Utica, May 23; Syracuse, May 24; Rochester, May 28; Buffalo, May 29; Erie, May 31, and Cleveland, June 4.

BRYANT TO MOVE HEADQUARTERS

Construction has been started on an administration and engineering research building at 2020 Montcalm St., Indianapolis, as the national headquarters of Bryant Div., Carrier Corp. The new building will house general management, sales, engineering and financial personnel who are now in the company's downtown location at 48 Monument Circle.

RECOLD APPOINTS EMBRY

B. W. Embry Co., Atlanta, has been appointed exclusive distributor for Recold air conditioning and refrigeration products in the states of Alabama and Georgia. Announcement was made by Hy Jarvis, president of Refrigeration Engineering, Inc., Los Angeles.

NEW GENERAL CONTROLS BRANCH IN WINNIPEG

General Controls Co. Ltd. (Canadian) has opened a new factory branch office at 1462 Erin St., Winnipeg, Manitoba. Harold Lowe was appointed manager.



IN-THE-FIELD CHARGING of automobile air conditioning systems with refrigerant can be considerably simplified through the use of 1-lb. disposable packaged refrigerants such as those being produced for this purpose by the Aerosol & Refrigeration Div. of American Potash & Chemical Corp. In recognition of this fact, certain automotive equipment companies now are distributing packaged refrigerants to their dealers. Novi Equipment Co., for example, is producing an automotive air conditioning kit containing four F-12 containers plus other equipment necessary to the installation.

get rid of **SCALE** ...for good!

With

anco

**Condenser Cleaner
Cooling Water Treatment**



Every water-cooled air conditioning and refrigeration system accumulates scale. And as the scale builds up, efficiency comes down. Power bills go up! Sooner or later you have an equipment failure and major repairs. It can all be avoided easily and cheaply. Simply dissolve ANCO CONDENSER CLEANER in the sump

while the system is in operation. In a few hours scale and rust are gone and head pressure is back to normal.

Once the system is clean, keep it that way with ANCO COOLING WATER TREATMENT. It comes in convenient individual cans which are placed in the condenser pan or tower basin where the contents gradually dissolve into the cooling water.

Don't Ask for Trouble—

Ask for ANCO Products.

Available at Your

Wholesaler.



FREE

WATER TREATMENT MANUAL

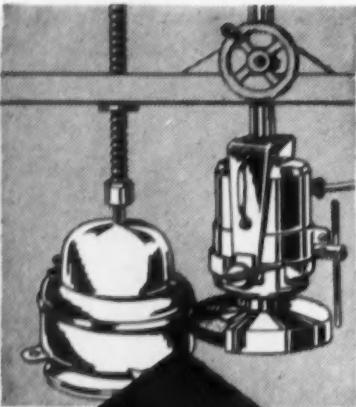
A complete booklet on the control of scale, rust and algae in refrigeration and air conditioning systems.

No service department should be without a copy. It's yours for the asking.



Anderson Chemical Company, Inc.

BOX 1424 • MACON, GEORGIA



**ONE
HERMETIC
Repair Job
per Week
will pay for
your**

**FRANKELL
HERMETIC
COMPRESSOR
OPENER ***

Simple to operate. Compact, semi-automatic machine that can easily open any compressor up to 20" in diameter, regardless of the location of weld.

Millions of hermetics in use. Thousands in need of repair. The Frankell *liberal payment plan* for the compressor opener . . . helps you obtain *your share* of this profitable business.

Get the full story at your local refrigeration jobber or write direct to Frankell.

*Pat. Pend.

CHANGE HERMETIC
STATORs AVAILABLE
AT YOUR LOCAL JOBBER

FRANKELL MFG. CO.
1074 HOME ST. • NEW YORK 59, N. Y.

Circle No. 80 on Reader Service Card
98

Calendar of Industry Conventions

April 19-21	Gas Appliance Mfgs. Assoc.	White Sulphur Springs, W. Va.
May 7-9	Air-Conditioning and Refrigeration Institute	The Greenbrier
May 7-11	National Restaurant Assn. (Convention-Exposition)	Hot Springs, Va.
May 15-18	Mechanical Contractors Assn. (Heating, Piping & Air Cond. Contractors Natl. Assn.)	The Homestead
May 22-25	Natl. Warm Air Htg. & Air Conditioning Assn. (Directors, Tech. Conference)	Chicago, Ill.
June 3-6	American Society of Refrigerating Engineers	Navy Pier
June 4-7	Edison Electric Institute	Louisville, Ky.
June 11-15	21st National Oil Heat and Air Conditioning Exposition	Kentucky Hotel
June 17-21	American Society of Mechanical Engineers (Semi-Annual Meeting)	Chicago, Ill.
June 18-20	American Society of Heating and Air Conditioning Engineers (Semi-Annual Meeting)	Edgewater Beach Hotel
June 25-29	American Institute of Electrical Engineers	Cincinnati, Ohio
Oct. 22-23	Air Conditioning and Refrigeration Institute (Directors Meeting)	Atlantic City, N.J.
Oct. 24-26	Air Conditioning and Refrigeration Institute (Product Sections)	New York City
Oct. 24-27	Air Conditioning and Refrigeration Wholesalers (Annual Meeting)	Coliseum
Nov. 15-18	Refrigeration Service Engineers Society (Annual Meeting)	Cleveland, Ohio
		Hotel Statler
		Washington, D. C.
		San Francisco, Calif.
		Point Clear, Ala.
		Grand Hotel
		New Orleans, La.
		New Orleans, La.
		Jung Hotel
		Kansas City, Mo.

**Clean Fittings FASTER
... for Better
Sweat Connections!**



Schaefer COPPER TUBE FITTING BRUSHES

Here's the quick, easy, "painless" way to clean copper tube fittings for more secure leakproof installations! Just a quick twist of the Schaefer Brush and the fitting is clean — in a fraction of usual time, and without sore fingers. Complete range of sizes for O.D. and nominal fittings, with rustproof stainless steel wire bristles and comfortable hand grips. Write for prices.

**Schaefer BRUSH
MFG. COMPANY**

117 W. WALKER ST., MILWAUKEE 4, WIS.
Write for details on special brush needs.

BUY SCHAEFER . . . IT'S SAFER

Circle No. 112 on Reader Service Card

**Your Customers'
Best Buy. . .**

**IDEAL
Speed-Freeze
PRODUCTS**

BEVERAGE COOLERS
unexcelled storage capacity
(56 cases 12 oz. - 8 ft. cooler!)

**INSTANTANEOUS
DIRECT DRAW
DRAFT BEER COOLERS**
(with refrigerated faucets)

**IDEAL
COOLER CORPORATION**
2953 Easton Ave. St. Louis 6, Mo.

Circle No. 82 on Reader Service Card

APRIL, 1956

COMMERCIAL REFRIGERATION

PLEASE ACCEPT THIS INVITATION!

We have a copy of the Dover Complete Line 12-page catalog waiting for you. It will answer your questions about Dover towers. Just fill in the attached coupon and your free copy will be on its way to you.



DOVER Manufacturing Co. Inc.

Dept. 101, 3117 Weatherford Ave.
Independence, Missouri

- I would like to have my FREE copy of the Dover Complete Line 12-page Catalog.
 Send me the name of my nearest Dover representative.

Name _____

Firm _____

Address _____

City _____ Zone _____ State _____

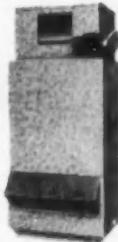
HERE'S THE RIGHT TOWER FOR THE JOB!

DOVER Complete Line of Packaged Cooling Towers

Whatever your cooling tower needs, now there is a Dover packaged cooling tower that's just right for the job. From 2 to 100 tons capacity, the complete line of Dover towers is America's new standard in packaged cooling towers.

Here is quality at a competitive price! While Dover towers are priced among the lowest in the industry, when you consider all the features you get only in a Dover tower, they are actually less expensive than others.

A TOWER FOR EVERY NEED . . . A NEED FOR EVERY TOWER!



VERTICAL INDUCED DRAFT TOWER

with Centrifugal Blower—Series V

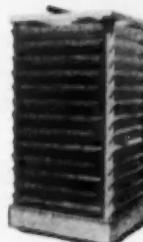
Ideal where space is limited. Install this compact tower anywhere in the building. Piping requirements are at a bare minimum. Super-quiet operation lets you place it in rooms close to workers—and it will ventilate the room that it is in. From 5 to 100 tons.



HORIZONTAL INDUCED DRAFT TOWER

with Propeller Fan—Series CF

A compact unit with all the design and construction features that you have been looking for in a packaged tower. Neat in design, rugged in construction, it is ideally suited for small air conditioning and refrigeration installations and for jacket water or air compressor cooling. From 2 to 100 tons.



NATURAL DRAFT TOWERS

In Steel & Redwood—Series S—or
All Steel Construction—Series K

Take your pick from either the new all-steel construction or the somewhat lower-priced redwood and steel construction. Both have the exclusive Dover bolt-free principle for quick, easy installation. Two men can erect some sizes in just 20 minutes. From 3 to 100 tons.

LOOK AT THESE BONUS FEATURES YOU GET ONLY IN DOVER TOWERS!



HOT-DIP GALVANIZING
all metal parts on all
Dover towers are hot-dip
galvanized after fabrication.
This costs you nothing extra,
yet saves you a lot by stopping
costly rust and corrosion
problems.

STAINLESS STEEL FANS
and shafts are
standard equipment on
all Dover Series CF
towers, providing you
with years of trouble-free
performance. Built to last.



"TAKE-APART" FEATURE
is another Dover exclusive. By virtually eliminating bolts, Dover towers can be quickly taken apart and reassembled where basement or rooftop locations make this desirable.



Circle No. 83 on Reader Service Card



THE NEW



DYNA-PAC

... FEATURING BOTH ECONOMY AND EFFICIENT LONG LIFE

- 2-, 3-, 5-ton capacities in water-cooled or air-cooled models
- For residential and commercial installations
- Selective manual humidity control
- Built-in plenum
- 4-way adjustable top air discharge on free blow models

The all-new UNARCO Dyna-Pac meets the challenge of better air conditioning at lower cost. What's more, it was designed with the installing contractor in mind. All Dyna-Pac units are pre-wired and pre-piped for easy, low-cost installation.

There is economy in both the low initial cost and minimum maintenance required. There is also economy of space with the compactly designed DYNA-PAC. Duct models can be attached to existing warm air heating systems to provide year 'round conditioning.

Write Dept. HC-105A for full information,
including catalog and prices.

UNION ASBESTOS & RUBBER COMPANY
332 South Michigan Avenue, Chicago 4, Illinois



The Royal-Aire—by UNARCO—representing the ultimate in packaged air conditioning equipment. Available in 5 models, 3 through 15 h.p.



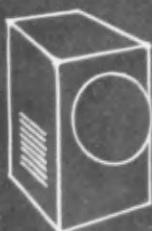
**PACKAGED
AIR CONDITIONERS**

HAVE YOU ENROLLED IN UNARCO'S DEALER PLUS PLAN? WRITE NOW FOR FULL DETAILS OF BIG DEALER AWARD PROGRAM.

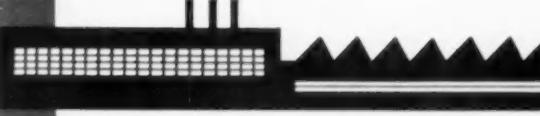
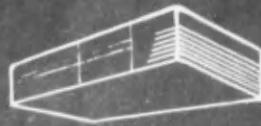
Circle No. 84 on Reader Service Card

Air Conditioning Section

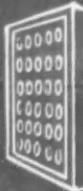
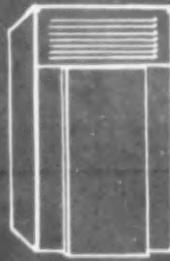
COOLING • HEATING • CIRCULATION AND HUMIDITY CONTROL



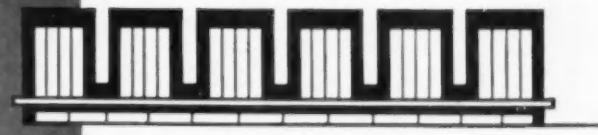
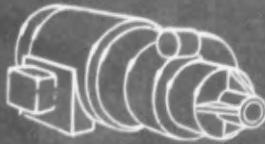
RESIDENTIAL



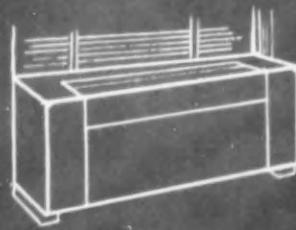
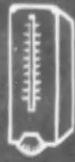
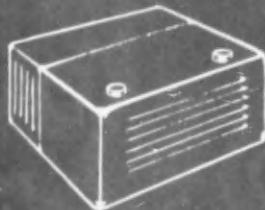
INDUSTRIAL



COMMERCIAL



INSTITUTIONAL



READER'S GUIDE

Put It on the Roof	103
Air Conditioning Rebuilds Hot Weather Food Business	104
Communities Can Be Customers, Too	106
"Packages" Solve Varied Problems	107
Are You Afraid of Electronic Controls?	108
Useful Air Conditioning Literature	112
What's New in Air Conditioning Equipment	114

**Why not sell and
install the Packaged
Air Conditioner that's
built and backed by a
company with over 75
years' experience in
the manufacture of
air handling and
conditioning equipment
for every business**

Sizes: 3 to 20 tons. See your American Blower Distributor or call our nearest Branch Office.

AMERICAN  **BLOWER**

Division of AMERICAN-Standard

AMERICAN BLOWER CORPORATION • DETROIT 32, MICHIGAN
Circle No. 85 on Reader Service Card

No Space Inside for Cooling Equipment? **PUT IT ON THE ROOF**



ONE rapidly growing market for small commercial air conditioning systems lies in the field of the drive-in type of eating establishment which is becoming so popular throughout the country. In addition to their drive-in facilities, most such establishments also offer some sort of table or counter service inside the restaurant for those patrons who prefer not to eat in their cars.

Like any other eating place, therefore, these drive-ins then become faced with the necessity of providing air conditioned comfort for their customers during the warm weather months, if they wish to hold their trade. Unfortunately, however, most such establishments are designed and built so compactly, and are so crammed with food service equipment and facilities, that often there is literally no

space available for the location of air conditioning equipment.

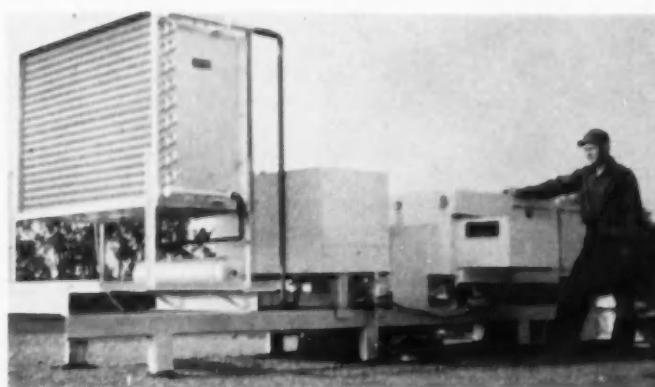
It was just such a dilemma which was satisfactorily solved for Dale's Drive-In in Fort Wayne, Ind., by Austin A. Hill, who operates Hill Refrigeration Sales & Service in that community. When the owner of the drive-in confronted Hill with his problem of needing and wanting air conditioning but having no place to put it, this

VITAL SPACE was conserved in this drive-in restaurant by a roof-top air conditioning system.

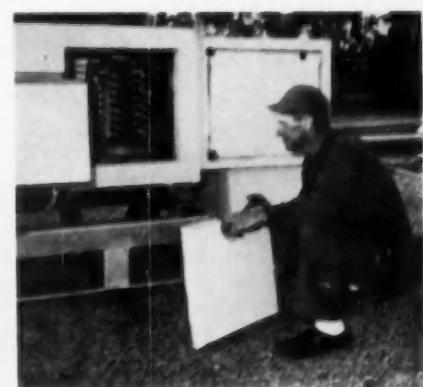
enterprising cooling contractor had a ready answer: "Put it on the roof."

So that's exactly what was done. After convincing the owner that this idea would really work, Hill proceeded to install a 5-hp belt-

Continued on page 132



COMPLETED INSTALLATION is inspected by contractor Austin Hill. Proper mounting and insulation of the equipment was extremely important.



ACCESS PANELS cut through the insulation simplify inspection and service of the units.



CEILING OUTLETS are used for both supply and return air. Photo at left shows one of the circular air diffusers in the ceiling of the ground level coffee shop. Arrows in photo at right point out



a similar outlet in the second floor cocktail lounge, and a rectangular return grille located just inside the window glass. An 18" drop ceiling facilitated air handling problems.

Plagued by a slackoff in patronage during warm weather spells, this Denver, Colo., airport restaurant quickly found that . . .

AIR CONDITIONING Rebuilds Hot Weather Food Business...

AIR conditioning has become a definite "food merchandising asset" at the Sky Chef Restaurant, in the Denver Municipal Airport Terminal Building, which recently installed a \$45,000 cooling system for the comfort of its patrons.

The first major restaurant in the Colorado capital to adopt mechanically-refrigerated air conditioning, the Sky Chef has made certain that the advantages of air conditioning are forcibly impressed on every patron. "We actually seem to have lost our formerly cool Colorado summers," Henry Thys, manager of the restaurant explains. "During 1953 and 1954, temperatures well up into the 90's began to make serious in-

roads on our summer food sales. The only logical answer was air conditioning, and as long as we were installing it, we decided to use its cool comfort as dramatically as possible."

To accomplish this, the second floor dining room, feeding 200 persons, as well as the cocktail lounge, accommodating 85, is cooled down to 59 or 60 F overnight, and is never allowed above 71 F throughout the day. This means a noticeably cool atmosphere which brings forth immediate comment from air line travelers and dinner guests entering for the first time. It creates so vivid a contrast with the exterior temperature that patrons are bound to "talk it up" to others.

Since the Sky Chef is located on two levels, with the dining room and cocktail lounge on the second floor, and a coffee shop and small bar on the ground level, the air conditioning installation is actually two systems.

Because of lack of space, and a desire to maintain an uncluttered appearance for the terminal building, it was decided to build a 10 x 15' steel-framed concrete "tower" at the east end of the structure, fitting snugly into a corner formed by two building projections. Here air handling equipment, compressors, and condenser are installed, in "sandwich" fashion, with compressors and the evaporative condenser at the ground level, and the two plenums for the separate 40-ton and 20-ton systems mounted in tiers above. This compact arrangement eliminates the need for project-



EQUIPMENT TOWER (shown under construction) houses evaporative condenser at ground level, with compressors behind it and air handling units above.

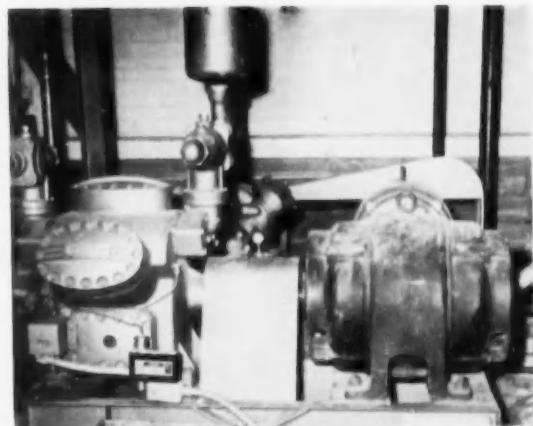
ing cooling towers, and maintains the low silhouette of the building.

The two compressors are located at the ground level, immediately behind the evaporative condenser. For purposes of economy, the 40-ton unit is set to cycle down to 25% output when desired, the 20-ton to 32% output, a highly valuable factor in Colorado's long, continued cool periods which even occur during the months of July and August.

The air handling units located directly above the compressors admit from 25% to 100% fresh air as required, with 15,000 cfm being delivered through the 40-ton system and 7500 cfm delivered through the 20-ton system. In both systems, air leaves the fans at 50 F, balanced against a 76 F temperature at the return air inlet, which has been found ideal to maintain the low overall temperature stressed in the food service and bar areas. Two master thermostats in the return air ducts control each system.

A stroke of good fortune in the original design of the terminal building, which was not planned for air conditioning, made it possible to save substantially on ductwork. This was the fact that the original ceiling was dropped 18" below the actual ceiling in both the first floor and second floor rooms. Thus, ductwork was required only for supplying eight circular grilles in the ceiling of the dining room and upstairs bar, plus five more in the coffee shop and downstairs bar.

Return air is simply picked up by a dozen narrow, slot-like grilles located in the ceiling just inside the window glass on both first and second floor, then



COMPRESSORS (above) are mounted side by side, adjacent to the evaporative condenser. **AIR HANDLING EQUIPMENT** (below) is mounted in upper portion of the tower, saving space and facilitating service.



passes through the space between the false ceiling and actual ceiling back to the air-handling blowers. This design provides a constant upward stream of cool air immediately inside the floor-to-ceiling glass walls which surround the Sky Chief, doing away with a serious heat load problem at that point.

The forced-draft evaporative condenser, carefully integrated into the tower's compact equipment arrangement, operates at approximately 1750 cfm. While construction of the equipment "tower" boosted the overall installation cost of the job to the \$65,000 figure, it is believed that the comparative accessibility of every unit for quick repair and maintenance, plus preservation of the building appearance, made this a wise investment.



AIR CONDITIONING
was the bait which lured Oberman Mfg. Co., a garment making firm, to this new community-sponsored plant in Valdosta, Ga. Conditioned air is delivered to the huge sewing room through the aluminum duct shown here.

Communities Can Be Customers, Too

WHEN a community sets out to lure new industry to its environs, the bait must be as attractive as possible. That's why air conditioning figured prominently in the program sponsored by the citizens of Valdosta, Ga., which resulted in the construction of a new and modern manufacturing plant in that city which has been leased for 20 years by

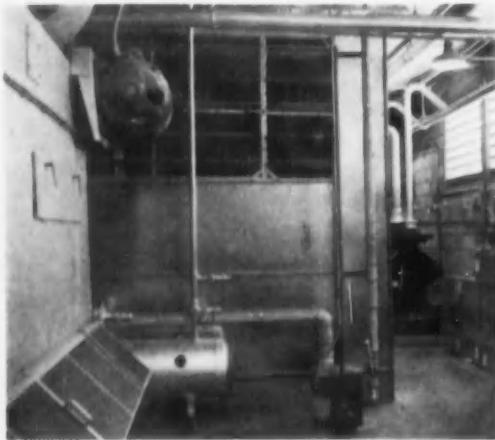
Oberman Mfg. Co., an out-of-state garment making firm.

It all started when, sparked by the local Chamber of Commerce, the people of Valdosta determined to spur the city's industrial growth. To finance this project a corporation known as Valdosta Industries No. 2 was organized, in which some 100 citizens of the community became stockholders with an in-

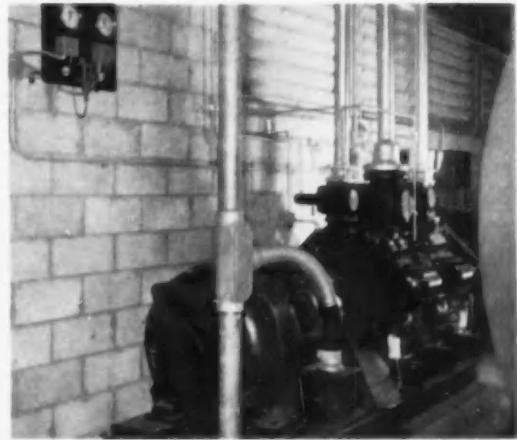
vestment of about \$150,000. This fund was swelled to \$250,000 by a bank loan.

A large tract of land was acquired and sub-divided into a dozen industrial sites. An intensive campaign then was begun to merchandise the advantages of interested industries.

Oberman Mfg. Co., maker of sports slacks, work clothes, and



MACHINERY ROOM of the Valdosta plant houses the components of the plant's 120-ton air conditioning system. Photo at left shows the rear of the central station air conditioner and a portion



of the matching evaporative condenser. At right is the 100-hp compressor which powers the cooling system. A total of 50,000 cfm of conditioned air is supplied to the plant by this equipment.

dungarees, with headquarters in Jefferson City, Mo., quickly became a prime prospect. The five plants already operated by this firm were unable to keep pace with the constantly growing demand for its products.

But a garment factory is not the coolest place in the world to work, and Valdosta — being about as far south in Georgia as you can get — is hardly the world's coolest location, so before the Oberman management would agree to locating a new plant in this community they insisted upon the assurance of 100% air conditioning throughout the factory.

120 Tons of Cooling Used

Consequently, as soon as the new building was designed and constructed, York Corp. was commissioned to plan and install a 120-ton year-round air conditioning system at a total cost of \$50,000.

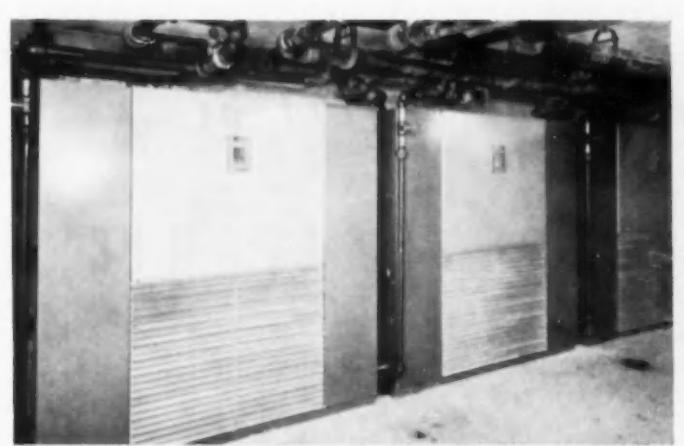
The plant itself has an area of 57,000 sq. ft. on one floor, housing not only manufacturing facilities but also administration offices and a cafeteria. It is equipped with more than 300 sewing machines driven by $\frac{1}{2}$ -hp motors, and is illuminated by 45,000 watts of lighting. The plant employs some 400 persons.

System Cost \$417 Per Ton

The air conditioning system supplies 50,000 cfm of conditioned air to the manufacturing area and an additional 2000 cfm to the offices. A direct expansion coil bank using Freon-12 handles the factory load, while a separate conditioner takes care of the office.

A 100-hp, 16 cylinder, $3\frac{3}{4} \times 3$ " compressor operating at 1170 rpm, plus a 120-ton evaporative condenser complete the cooling cycle. A small boiler supplies steam to reheat coils to provide the modest amount of winter heating required.

The simple design and efficient application of this air conditioning system, the installer claims, resulted in a cost of less than 88 cents per square foot, or less than \$417 per ton of refrigeration.



NOTHING BUT PACKAGED UNITS like these was used to air condition a 36-unit Ohio shopping center, even though one store required a total of 70 tons of cooling. Use of packages provided maximum flexibility of equipment arrangement to meet the needs of individual tenants.

"Packages" Solve Varied Problems

AIR conditioning is almost always an integral part of that newest American phenomenon, the shopping center. By their very nature, however, shopping centers present a challenge to air conditioning installers, and the Magic City Center in Barberton, Ohio, was no exception.

Magic City is a \$3,500,000 development consisting of 36 stores and several professional offices. A total of 450 tons of air conditioning is used to cool the entire project.

Because the type of tenant for each store was not known at the time of construction, the stores were built in various sizes and only side walls, partitions, and roofs were constructed. Roughing in of electricity and plumbing had to be as simple as possible.

As soon as each store was leased, Max Weisbrod, of Refrigeration Distributing Co. Inc., Canton, Ohio, General Electric distributor who air conditioned the Center, received an outline sketch of the store showing the front display windows, the partitions, and the storage area. Weisbrod then contacted each new tenant to ascertain how he planned to lay out his sales area.

From the time each lease was signed it was only about two weeks until the concrete floors were poured, ceilings put in, and the store completed. By careful advance planning, Weisbrod made it possible for his installers to move in with their packaged equipment and install it in predetermined locations as soon as the concrete floors had hardened.

A great variety of applications were made necessary by the variety of types of businesses conducted in the Center. Units are installed in-space, out-of-space, on the selling floor, in storage rooms, and in basements.

Most stores in the Center called for only one or two packaged units to completely air condition them. One chain variety store, however, required a total of 70 tons of cooling. This store includes a mezzanine, main floor sales area, and basement. Half of the basement is storage area and half sales floor. Four 15-ton packaged units, plus one of 10-ton capacity were required to do the job.

Are You Afraid of Electronic Controls?

... You don't have to be!

While many air conditioning contractors still labor under the misconception that electronic controls are complicated, difficult to install, and require frequent adjustment, actually the reverse is true. Here is a down-to-earth discussion of how they operate and what they will do.

by Edward Dowis

AUTOMATIC control is essential to the safe, economical operation of air conditioning equipment and to attain the maximum degree of comfort under a wide variety of conditions. In general, the most simple system which will perform the desired functions dependably should be selected. It is on this basis that electronic control is bidding, with increasing success, for recognition in the air conditioning field.

There is a prevailing misconception that electronic controls are complicated, difficult to install and require frequent adjustment. Actually the reverse is true and it is because of simplicity and ease of installation that their use is often indicated. The sensing devices, such as room thermostats and humidistats, are the most rugged of any. They contain no moving parts, consisting only of a wire resistance in a suitable housing. Adjustment can be made at a distant location, making them tamper-proof by unauthorized persons. The entire system has a minimum of moving parts and wiring connections.

Electronic controls are so named because they make

use of electron tubes to amplify very minute changes in electric currents, caused by temperature, humidity or pressure. These amplified currents, in turn, work through relays to operate valves, dampers or switches to maintain desired conditions within very close limits. Response within one tenth of one degree change in temperature is possible. Sensing elements can be placed at two or more locations so that average conditions can be controlled. A combination of outside and inside thermostats can be used to attain most desirable conditions for varying outside temperatures.

A comprehensive knowledge of electrical theory is not necessary to the application, adjustment or maintenance of electronic controls, since the tube circuit is self-contained and can be depended upon to function properly. Maintenance consists mainly in keeping clean and free of moisture and replacing tubes as required. Since tubes usually operate well below their rated capacity, they do not require frequent replacement. Some relays are of the plug-in type, sealed against dirt and moisture. Replacement is the same as that of a tube. Relays of the open type require only that they be kept clean.

The operation of the tube is illustrated by Fig. 1. It consists of a glass or metal enclosure, containing a filament, plate and grid spaced relatively as shown. When the tube is heated by the filament and voltage

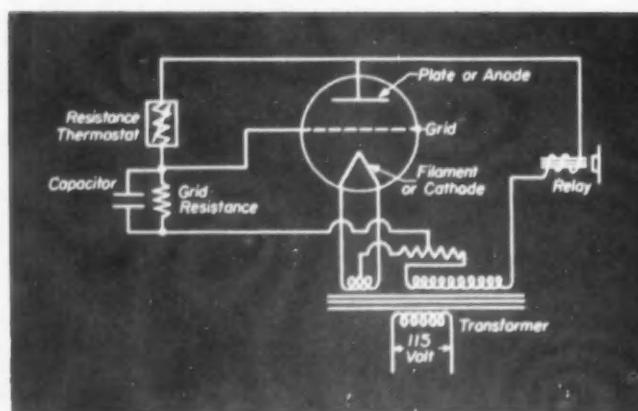


FIG. 1 — Elementary amplifier circuit.

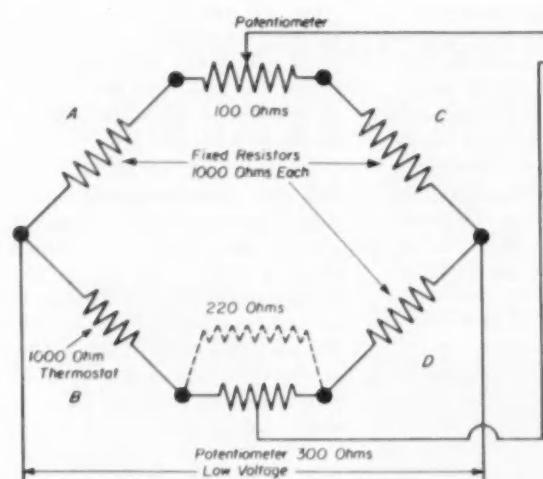


FIG. 2 (above) — Bridge circuit as used with electronic controller.

FIG. 3 (right) — All-year electronic control circuit.

applied between filament and plate, with the positive side to the plate, electrons will pass from filament to plate, setting up current flow which can be measured in milliamperes or used to close or open a relay circuit. When the applied voltage is alternating, as from a transformer, current will flow during the half cycle when the plate is positive.

The grid is a wire form placed between the filament and plate and charged negatively. With the proper negative charge, the flow of electrons between plate and filament can be practically stopped, with very little current flow in the plate circuit. A very small change in negative grid voltage will be amplified many times in the plate current. Thus the otherwise imperceptible change in resistance of the wire in the thermostat caused by a temperature change of a small fraction of a degree can be used to operate the controlling relay. Resistors, potentiometers, and condensers are used to create the proper potential values for best operation of the tube.

Additional grids, screens and other elements are sometimes included within the tube to improve capacity or operation. The names anode and cathode are sometimes given to the plate and filament respectively, these being the positive and negative elements of the plate circuit. Two or more stages of amplification may be employed, each with a separate tube and each multiplying the output of the one preceding it. The cathode may be a separate element, in which case the filament is included within it and used only for heating.

The possible variations in amplifier design are almost infinite. The components, except for the tubes and relays, are resistors, condensers, coils and transformers of rugged construction, though they occupy a very small space. The amplifier must be designed to operate with a particular type of sensing device, and parts with different characteristics can not be interchanged.

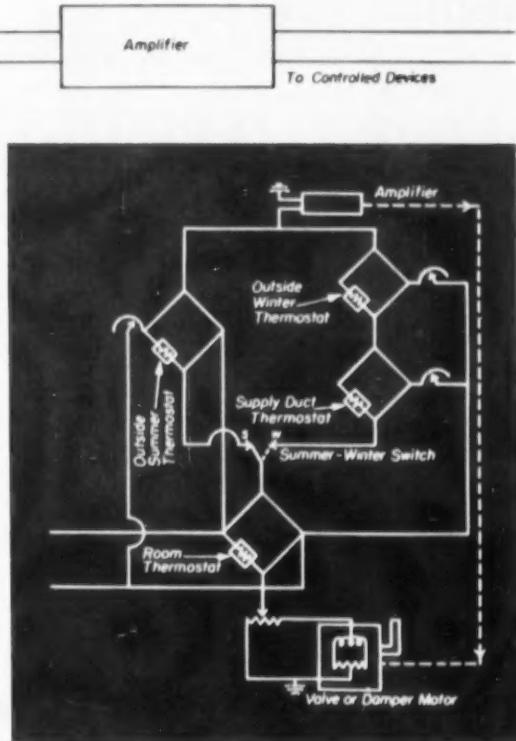
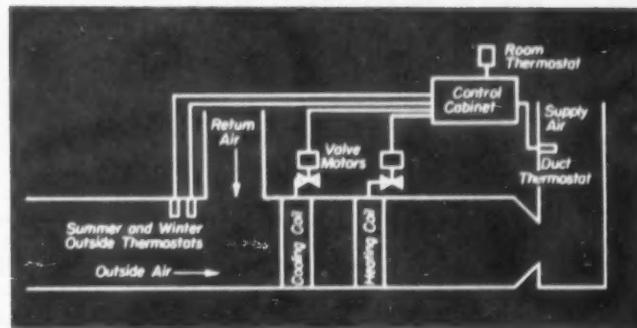


FIG. 4 (below) — Location of elements for all-year control system.



A thermostat connected to an amplifier as indicated in Fig. 1 would lack stability because of variations in line voltage and tube deterioration. To overcome this, the sensing element is incorporated with other resistors in a circuit similar to the wheatstone bridge commonly used to measure resistance. Such a circuit, as used for control purposes, is shown in Fig. 2. It can be shown that when the ratio of resistance of A to B is the same as that of C to D, no voltage will be applied to the amplifier. For purposes of calibration and setting of the control point, potentiometers are connected between fixed resistors A and C and also between B and D, and the amplifier connected to the sliding contacts.

The exact values of the various resistors are unimportant, as is that of the applied voltage, since it is

the ratio of the resistances which determines whether or not the bridge is in balance and not the numerical value or the applied voltage. In one typical system, the resistance thermostat A is of 1000 ohms and fixed resistors B, C and D also 1000 ohms each. Potentiometers of 100 and 300 ohms are connected between A and C and between B and D respectively, with a shunt of 220 ohms connected parallel with the 300 ohm potentiometer in this particular system.

All equipment except thermostats, humidistats, and the operated devices such as damper and valve motors, is contained in one compact cabinet, which also contains dials for setting thermostats, adjusting calibration, and shifting to open, closed or automatic operation. Shielded cable is advisable from thermostat to amplifier. Conventional wire suitable to the voltage may be run from amplifier to controlled motors.

Control Dial Operation

In operation, the control dial is set to the temperature desired and the calibration dial adjusted to balance the bridge and stop current flow to the amplifier at that temperature. At 70°F the potentiometers (Fig. 2) which the dials operate will probably be at about mid position, allowing for adjustment either way. Should the temperature at the thermostat rise or fall a fraction of one degree, the resistance of its temperature sensitive wire will increase or decrease, causing current to flow to the amplifier which supplies current to the controlled motors or operate equipment through the relay.

The thermostat used for electronic control consists of a form wound with a coil of wire having a high ratio of resistance change to temperature change. It may be coated with varnish to stabilize operation and protect from moisture. Total resistance is usually high to provide maximum change for each degree temperature rise or fall.

To control average temperature from two or more locations, it is only necessary to substitute two or more thermostats for the single one. The combined resistance must total that of the single one which they replace. Thus two 500-ohm or three 333 1/3-ohm thermostats may be used in place of a 1000-ohm one. These are connected in series. The resistances need not be equal so long as they total that of a single controller. A 300 and a 700-ohm controller may replace one of 1000 ohms. The effectiveness of each in determining the temperature will be in proportion to the resistance.

It is possible to use two thermostats of unequal resistance to compensate for outside temperature



change. A 200-ohm thermostat in the outside air duct connected in series with an 800-ohm room thermostat would raise the inside temperature one degree for every four degrees drop outside. This is because the lowered resistance of the outside thermostat must be compensated by higher room temperature to keep the average at the control setting.

Automatic reset or compensation for outside temperature change for summer cooling is the reverse of that for heating. When outside temperature falls, lower inside temperature is desirable. This requires an additional bridge circuit identical with that in Fig. 2 but with a variable resistance to control the voltage across the bridge. The degree of compensation is proportional to the voltages across the two bridges. If the auxiliary bridge is adjusted to a voltage of 1/10

that of the main, a 10-degree change in outside temperature would change the main thermostat setting 1 degree. Both thermostats, in a double bridge circuit, are of the same resistance.

The auxiliary bridge will provide either direct compensation for cooling or reverse for heating, depending upon the relative polarity of the voltage applied to the bridges. Identical polarity is used for heating and reverse for cooling. The auxiliary bridge is preferable to the split resistance method of compensation since the ratio is readily adjustable.

Main Bridge Function

The connections to a main and three auxiliary bridges for a complete summer-winter electronic control system is shown in Fig. 3. The main bridge contains the room thermostat and is the basic controller. The discharge thermostat is placed in the supply air duct and senses the warm air before the room thermostat, limiting the temperature of the supply air. The winter outside thermostat, placed in the outside air duct or outside the building, raises the inside control point as outside temperature falls.

Indoor-Outdoor Balance

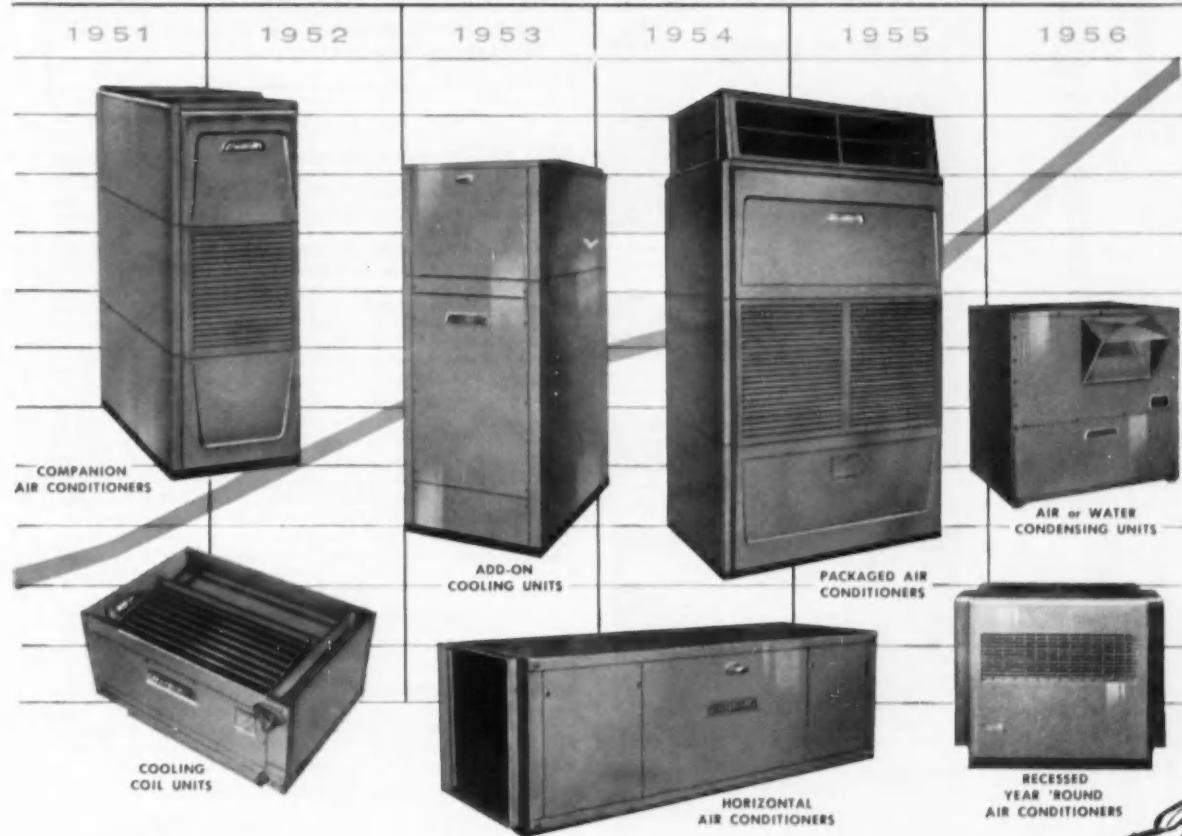
The summer outside thermostat is connected to raise the inside control setting as outside temperature rises and decrease it as outside temperature falls. The proportional compensation is adjustable by the voltage rheostat. The relative location of the various elements of the all year system is shown in Fig. 4.

Electronic controls can operate either two position (on-off) devices or proportioning motors. The proportioning controllers will position a valve or damper in any position from full open to full closed as determined by the variation of the actual temperature from that at which the control is set. This is accomplished by a potentiometer contained within and operated by the controlled motor

Continued on page 133

Here's all you need to make '56 greatest of the green years

COOLING EQUIPMENT SALES



MUELLER CLIMATROL'S long green line offers dealers top opportunities

Yes, with Mueller Climatrol to back you, there's no reason why '56 shouldn't be your "greenest" year yet.

YOU'VE GOT THE LINE TO FIT THE NEED. Packaged units, add-ons, combinations, companions, self-contained and remote, air- and water-cooled — the works.

YOU'VE GOT THE PROMOTION. A flood of national and local advertising, plus a complete package of proven sale aids.

YOU'VE GOT THE ENGINEERING TRAINING AND HELP. Factory schools open to all dealers, field assistance on installation and servicing, technical manuals and bulletins — ready answers to any problem.

YOU'VE GOT THE FACTORY BACKING. Ample stocks, speedy handling and shipping, a genuine interest in your customer relations.

Want the full story? It's a dandy. Write . . .

Mueller Climatrol

DEPT. 46, 2055 WEST OKLAHOMA AVENUE • MILWAUKEE 15, WISCONSIN
Circle No. 86 on Reader Service Card

& AIR CONDITIONING • APRIL, 1956

...sales are turning
greener every day

ON THE Booming Florida Scene DRAYER-HANSON AIR CONDITIONING

MORE



Seville Hotel, Miami Beach. Architect: Melvin Grossman/Air Conditioning Engineer: Sam L. Hamilton.

AND MORE



Hollywood Beach Hotel, Hollywood, Fla. Architect: Melvin Grossman/Engineers: Sashell Engineering.

AND MORE



Belle Isle Apartments, Miami Beach. Architect: Robert B. Swartburg/Engineers: Altec Engineering Co.

AND MORE



Lucerne Hotel, Miami Beach. Architect: Carlos B. Schaeppi/Engineers: Altec Engineering Co.

A sure sign of the times in Florida—"Air Conditioning by Drayer-Hanson"!... in a wide variety of installations: the new Biscayne Shopping Plaza, La Gorce Country Club, Miami Sheriff's Station, El Sirocco Motor Hotel, many more. Marked advantages to meet any requirements with D-H Flexazone systems! Spafaire systems! HH and HHV systems!



Request catalogs

drayer-hanson
INCORPORATED

3301 Medford Street • Los Angeles 63, California

(Division of National - U.S. Radiator Corporation)

Circle No. 89 on Reader Service Card

112

USEFUL LITERATURE On Air Conditioning

To obtain the information described below, simply circle on the postcard in this issue the key numbers of the items you wish to receive. We will forward your requests to the companies concerned.

NEW AND MODERNIZED 40-page engineering manual No. E.M.-G.5622 is published especially as a reference guide for architects, engineers, and air conditioning contractors by Drayer-Hanson, Inc. It contains latest and most complete data on company's line of large air handling units—the HH (ceiling suspended) and HHV (floor mounted) series for commercial, industrial, and residential heating and cooling. Manual illustrates and gives dimensions and capacities with selection and application data. Helpful charts and tables of general interest cover several pages. Included is psychrometric chart with "how-to-use" visual instructions. Other sections of publication are devoted to selection of proper unit sizes of air handling equipment, including CFM, cooling CFM with breakdown of selection examples given.

Circle No. 120 on Reader Service Card

SIZE SELECTION TABLE for users such as architects, engineers, contractors, and draftsmen is available from Waterloo Register Co., Inc. Figures used in table are based on actual laboratory tests of Waterloo's 4-way directional control grill. Table is designed to make easier the selection of proper sizes, and includes instructions for use and return air selection table which is now a standard part of all Waterloo Series 9-55 catalogs.

Circle No. 121 on Reader Service Card

BROCHURE DESCRIBING the new Q-Duct silencing system for air conditioning and ventilating installations is available from Industrial Acoustics Co., Inc. The catalog describes in detail the various applications of the new pre-fabricated duct units which are available in over 148 sizes to fit virtually all installations.

Circle No. 122 on Reader Service Card

CEILING DIFFUSERS FOR high ceiling applications requiring complete adjustability or long vertical projections are described in a four page folder issued by Barber-Colman Co. The folder describes the Model BP Venturi-Flo diffusers, gives performance data, and illustrates two mounting methods which can be used in connection with installations where such type of diffusers are used. The diffusers described are designed principally for use in manufacturing areas, gymnasiums, auditoriums, and similar high ceiling installations. The bulletin is designated as F-7722.

Circle No. 123 on Reader Service Card

SEVERAL NEW PRODUCTS and a number of educational illustrations in color on proper venting and balancing of hot water heating and chilled water cooling systems are covered in a new 12-page catalog just made available by Maid-O-Mist, Inc. The catalog covers the company's complete line of heating and air conditioning specialties. Included is a simplified selector chart with illustrations on automatic humidifiers for all types of heating.

Circle No. 124 on Reader Service Card

NEW BULLETIN ON its "Flexi-Cool" units has been issued by Worthington Corp. Designated as Bulletin No. C-1100-S105-P, the bulletin illustrates many of the ways in which "Flexi-Cool" can be arranged. It shows relative positions of the basic components—cooling cycle, blower, filter, and plenum sections—and also gives piping and duct sizes.

Circle No. 125 on Reader Service Card

BRIEF CASE HISTORIES of architectural solutions to problems of efficient and economical air conditioning in both old and new buildings are included in a quick-reference file published by the Du Pont Co. The 1955 architectural file folder (A-932) is illustrated with examples of building installations, and is the seventh in an annual series of architectural file folders produced by the company's Kinetic Chemicals Division. Covered in the 1955 folder are such subjects as spot air conditioning of television studios; use of vertical building fins, external shades and heat-reducing glass to cut cooling loads; perimeter cooling of office buildings with use of ceiling plenum chambers, and use of baffles and resonators to silence cooling fan noise.

Circle No. 126 on Reader Service Card

SELF-PRIMING PUMPS are the subject of a 4-page catalog insert offered by Bell & Gossett Co. Features and applications are illustrated, and performance tables are provided.

Circle No. 127 on Reader Service Card

A NEW BULLETIN just released by the Aurora Pump Div. of New York Air Brake Co. illustrates and describes its galvanized steel and cast iron receiver condensation return units. Bulletin H-113, gives selection tables and typical dimensions for both.

Circle No. 128 on Reader Service Card

TRU-AIR HEAVY duty air cooled condensers with capacities up to 200 tons is described in Bulletin AC3 available from M. Blazer & Son, exclusive distributors for Tru-Air products. Condensers are air-cooled, and are for use with Freon-12 and 22.

Circle No. 129 on Reader Service Card

(Turn to page 80 for more Useful Literature)

Here's how to end
special size AIR FILTER problems!



with
E Z KLEEN WASHABLE
ALUMINUM
Air Filters

For filter sales or filter service, E Z Kleen aluminum washable air filters for air conditioners fit your profit picture perfectly. They permit a reduced inventory... result in fewer call-backs... require less storage space. With home service by customers, you profit from sale of R P Handi-Koter adhesive or R P Super Handi-Koter, fast-selling, replacement items. Or...you can establish a profitable service business. Whatever your type operation, E Z Kleens are the answer! In $\frac{1}{2}$, 1, or 2" thicknesses.

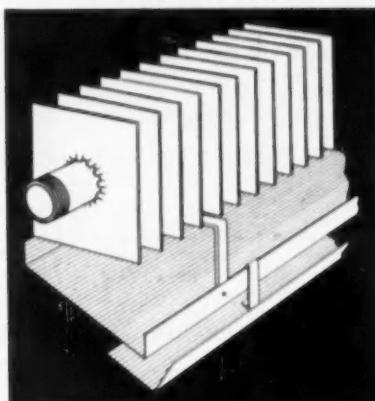


... PRODUCTS OF RESEARCH

RESEARCH PRODUCTS CORP.
DEPT. 21, MADISON 10, WISCONSIN

Circle No. 88 on Reader Service Card
& AIR CONDITIONING • APRIL, 1956

Circle No. 87 on Reader Service Card



FRICK Square- finned pipe

is ideal for cold storages, freezers, food processing and meat packing plants, etc. Manufactured from 2" dia. F.W. steel pipe and 7" square 14-gauge fins, Frick finned pipe gives maximum heat transfer per dollar invested. Each fin is bonded to the pipe under tons of hydraulic pressure. All assemblies are hot-dip galvanized.

These new Frick finned coils require only one-quarter of the space needed for bare pipe having the same surface. This new finned pipe is available in lengths of 5', 6'8", 10' and 20'—and with fin spacings of 1" and 1 1/2"—to fit every application.

See your nearest Frick Branch or Distributor for complete details, or write for Bulletin 158.



WRAP ON FIBER GLASS INSULATION

This popular \$1 pkg. of insulation has countless uses. Of high tensile strength, the 25' roll of 3" wide fiber glass is $\frac{7}{8}$ " thick (not $\frac{1}{2}$ " or $\frac{1}{4}$ "). The 30 ft. of 2" vapor seal tape in each pkg. gives a smooth finished appearance and will take any kind of paint.

FREE Ads... FREE Display Cartons



WRAP-ON CO., Mfrs.

347 W. Superior St.

Chicago 10, Ill.

A lot of resale business may be had from people with sweating or dripping pipes or long hot water lines that need insulation. Each display carton of 12 pkg. has a \$2 free ad coupon and mats. Use the ads. Many of the insulation buyers attracted will be prospects for services.

MAIL COUPON FOR QUICK INFORMATION
DEALER'S NAME
ADDRESS
PREFERRED JOBBER

Circle No. 103 on Reader Service Card

WHAT'S NEW

in Air Conditioning Equipment

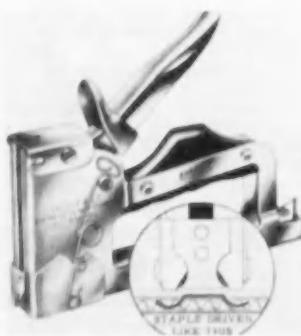
For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your request will be forwarded directly to the companies concerned.

(For more New Products turn to page 84)

Clinch Stapler

Product: New CT-851 "Duo-Fast" outward clinch stapler.

Manufacturer: Fastener Corp., Chicago, Ill.



Features: Tool is designed for fastening pipe coverings, and Fiberglass insulation around warm and cold air ducts. Staple legs flair outward and upward in clinching action. No anvil is needed. One-hand operation leaves other hand free to hold wrapping material in place.

Circle No. 137 on Reader Service Card

Return Air Grilles

Product: No. 21 and 23 air conditioning return air grilles.

Manufacturer: Air Control Products, Inc., Coopersville, Mich.



Features: Units are available for sidewall or baseboard grille installations. Vertical fins provide maximum of free area. Six sizes of grilles are available in either series, from 8 x 6" to 30 x 6".

Circle No. 138 on Reader Service Card

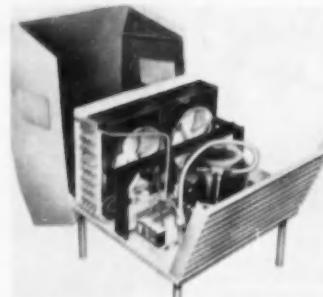
Remote Conditioners

Product: Residential remote air conditioners for use in conjunction

with virtually any type of home heating system.

Manufacturer: U. S. Machine Div., Stewart-Warner Corp., Lebanon, Ind.

Features: Provides advantages of central air conditioning with minimum of special ducts, structural changes, or sacrifice of usable space. Condensing unit (shown) is placed on small concrete base at ground level, close to house, or is suspended from eavestrough rafters. Only evaporator coil and blower, plus small diameter copper tubing carrying refrigerant to and from remote condensing unit, are inside house. Units are available in three sizes, from cooling capacity of 22,500 to 62,000 Btu/hr. All sizes available either air-cooled or water-cooled. Evaporator coils are of two types—"A" type, for vertical air flow, and "H" type,



for horizontal air flow. Blower units for either installation are available for particular heating system used. Fan motors range from $\frac{1}{4}$ to $\frac{1}{2}$ hp. and 9 to 15" in diameter.

Circle No. 139 on Reader Service Card

Heat-Flow Monitor

Product: Portable model HFG-2 heat-flow monitor.

Manufacturer: National Instrument Laboratories, Inc., Riverdale, Md.

Features: Unit reads directly in Btu's heat-flow through any surface in contact with disc. Core of instrument is HF-2 disc, whose output is 250 microvolts per Btu per sq.ft. Scores of applications extend from



checking efficiency of structural, pipe, or window insulation to exploring heat-flow loss of refrigerated or heated areas. Housed in sturdy case, 7-lb. product includes meter with polarity, range and transit switches, the last for protection of meter when carried. Disc, connected by 6'-long leads to plug-in resistance box, comprises separate pre-calibrated assembly, entirely interchangeable for future replacements. Heat-flow measurements are made in ranges of 0-30 Btu per sq.ft., 0.60, 0.300, and 0.600. Precision of readings is 1% and meter accuracy .3%.

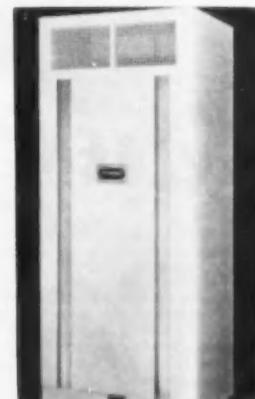
Circle No. 140 on Reader Service Card

Meat Cutting Conditioner

Product: Model H86SC package air conditioner designed especially for use in meat cutting rooms of food markets.

Manufacturer: Typhoon Air Conditioning Co., Inc., Brooklyn, New York.

Features: Units are available in 3, 5, and 8-ton capacities in baked white enamel finish. Model engineered for lower than normal temperatures by means of additional low temperature limit cut-off which prevents freeze-up of cooling coil. Wide-area air circulation prevents direct air current. Cooling coil, sil-



ver-soldered at all joints, is constructed of seamless copper tubing with bonded helical fins. Copper jet counterflow condenser incorporated in unit utilizes tube-within-a-tube de-

GET 'EM CLEAN & KEEP 'EM CLEAN

Use Calgon's **BIG 3** to lick cooling tower water troubles

You don't have to put up with scale or other water troubles that commonly occur in cooling water systems. **Calgon's BIG 3 water treatment products** can get you out of trouble, and keep you out of trouble for good.



Use Calgon Scale Remover to GET the system clean!

Calgon Scale Remover is the safest material you can use to get a recirculating water system clean. It has a corrosion inhibitor to protect the system while in use. A built-in Ph color indicator guides proper application and tells you when you have used enough to get the system clean.



Use Micromet Plates to KEEP the system clean!

Micromet Plates provide continuous treatment to prevent further scale formation. A single charge will last up to six months, and the inexpensive feeding bag needs no costly plumbing installation. Recommended by many equipment manufacturers to inhibit scale formation and keep equipment efficiency high.



Use Calgon Algaecide to control slime growths!

Calgon Algaecide comes in pellet form, is easy to use, and is non-corrosive to equipment. Positive action stops bacteria and slime growths, keeps equipment clean.

calgon, inc.

A SUBSIDIARY OF HAGAN CORPORATION

HAGAN BUILDING, PITTSBURGH 30, PA.

Circle No. 91 on Reader Service Card

sign which cuts water consumption. Low pressure drop design requires no change of circuits for city water or cooling tower operation. Where waterless operation is preferred, air cooled condenser can be applied. Control box consists of adjustable thermostat and selector switch. Built-in overload protection and high-low pressure switch safeguard equipment. Cabinets are constructed of 14 gauge cold rolled steel, electrically welded into rigid, vibration-free units lined with acoustic and thermal insulation.

Circle No. 141 on Reader Service Card

Air Conditioner

Product: Cabinet-type air conditioning units that cool, dehumidify, heat, humidify, and clean air.

Manufacturer: Worthington Corp., Harrison, N. J.

Features: New line has interchangeable panels that permit any preferred air discharge and intake. Motor mounting and fan location may be positioned in front, top, or back. Single screw makes possible 3½" variation in motor base adjustment. Locking nut holds base in proper position, enabling exact positioning of motor for correct belt



tension. Models can be installed either vertically (Model CV) or horizontally (Model CH, shown). Units consist of base, fan, and coil sections with drip pan, available in 10 sizes, from 1½ to 106 tons capacity, offering 81 coil combinations for chilled water or direct expansion application. Units can handle up to 19,200 cfm. of air. Other features are lubricated-for-life fan shaft ball bearings, high or low velocity filters, and rigid cross-break panels. Accessories include cleanable water coils, water spray, steam grid, and steam pan humidifiers, all interchangeable between horizontal and vertical models.

Circle No. 142 on Reader Service Card

reliable motor capacitors for every need

• speedy change terminals

New, improved lug terminals equipped with screws for fast simple connections. For soldering, just remove the screws.

• special mounting hardware

End caps and brackets made especially for motor capacitors to make neat, professional-looking replacement jobs easy.

• wide range of ratings

Sprague stock units cover all needed capacitance values in 110, 125, 160, 220, and 320 volt ratings. There's never any need to wait around for specials.

• smaller sizes

New Sprague engineering developments have reduced physical size for greater utility, with no sacrifice in quality.

• metal or plastic cases

The complete Sprague line has the right replacement capacitor for every motor.



Save Time And Trouble... Replace Capacitors The Easy Sprague Way

Free booklet gives you all the facts on SPRAGUE motor capacitors... dependable replacement capacitors that cure the trouble permanently. Write for Motor Capacitor Manual C-910 to Sprague Products Company, 53 Marshall Street, North Adams, Massachusetts.

don't be vague... insist on

SPRAGUE®

world's largest
capacitor manufacturer

SPRAGUE PRODUCTS COMPANY IS THE DISTRIBUTORS' DIVISION OF THE SPRAGUE ELECTRIC COMPANY

Circle No. 92 on Reader Service Card

116

Hand Truck

Product: "Hyker" hand truck designed to facilitate one-man installation of air conditioning units.

Manufacturer: L-S Heating & Engineering Co., Philadelphia, Pa.



Features: Air conditioner deliveries upstairs by one man, and windowsill installations without a helper are made possible with lightweight magnesium hand truck. Lifter shelf for hefting conditioners over radiators and furniture is screw-operated.

Circle No. 143 on Reader Service Card

Magnetized Mounting Clips

Product: "Magneclip", magnetic mounting clips to facilitate taking draft or pressure readings in hard-to-reach places.

Manufacturer: F. W. Dwyer Co., Michigan City, Ind.

Features: Device clings to any steel surface, grips instantly, and holds 15 lbs. Can be easily adjusted

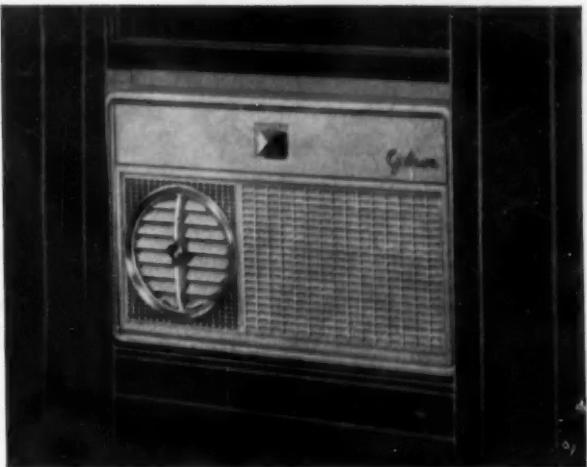
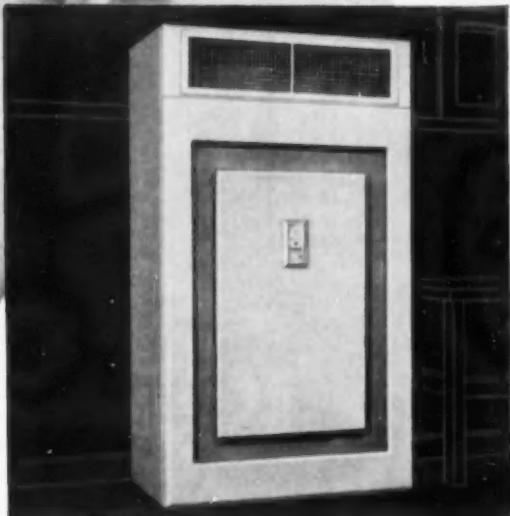


You make more sales with

Gibson

because Gibson gives more
to your customers!

means more profit to you!



Here is large capacity air conditioning for businesses, and for homes where central air conditioning is desired. Gibson's extra capacity water-cooled condenser gives maximum efficiency with low water consumption. Adjustable air vents give flexible air distribution, and duct connections are convenient.

Available in 2, 3, 5 and 8 horsepower units, air cooled and water cooled in commercial (shown here) and residential models.

Take this Gibson Custom Air Conditioner, for instance! It has Gibson's new Infinite Control direction louver for no-draft circulation. Push Button Controls, of course, that control both cooling and circulation at either high or low speed. Permanent type electro-static dust magnet filter, and thermostatically controlled cooling. Exclusive Gib-Sun-Air Ozone Lamp freshens the air, removing stale odors.

Gibson window air conditioners are available in $\frac{1}{4}$ h.p., 1 h.p. and 2 h.p. Custom models and in lower priced Deluxe models with the same horsepowers.

79 years of experience and millions of satisfied customers mean you can always rely on

Gibson

REFRIGERATORS • ROOM AND SELF-CONTAINED AIR CONDITIONERS.
FOOD FREEZERS • ELECTRIC RANGES • BUILT-IN RANGES

**Gibson Refrigerator Company
Greenville, Michigan**

Please send me all the facts on the profitable Gibson air conditioning line.

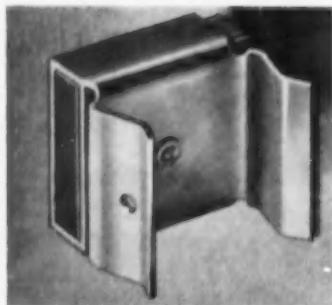
Name.....

Firm name.....

Address.....

City..... State.....

to an accurate, level setting that won't shift or vibrate out of position. "Magneclips" are being included as



standard equipment on all Dwyer portable vertical and inclined manometers of solid plastic construction, as well as various models of the company's "Flextube" and "Slacktube" manometers.

Circle No. 144 on Reader Service Card



Water Pipe Insulation

Product: New popular package of fiber glass pipe insulation with vapor seal tape.

Manufacturer: Wrap-On Co., Chicago 10, Ill.

Features: New \$1 package of "Wrap-On" insulation contains 25'

of 3" wide fiber glass $\frac{7}{8}$ " thick instead of $\frac{1}{2}$ " or $\frac{1}{4}$ " previously available. High tensile strength to prevent pulling apart during installation is obtained by laying fibers lengthwise of roll. 30' of 2" wide vapor seal tape is included to provide a durable outer coating that will take any kind of paint. When insulation is overlapped one-half to give a double layer, package will cover 17' of $\frac{1}{2}$ " pipe, 13' of $\frac{3}{4}$ ", 10' of 1", or 6' of 2" pipe. Jumbo package, also available, has 25' of 6" wide insulation, 25' of 4" wide vapor seal tape, for wrapping water tanks, large size pipe, or furnace pipe.

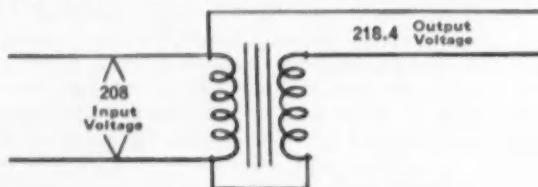
Circle No. 145 on Reader Service Card

THESE BUCK & BOOST TRANSFORMERS



MAY HELP YOU SELL MORE AIR-CONDITIONING EQUIPMENT

Many air conditioning installations in older buildings have been postponed due to the cost of supplying adequate electrical facilities. Now, in most cases, this problem is solved with an Acme Electric Buck and Boost transformer. When connected to the existing low voltage electrical source, voltage can be boosted to exactly meet the requirements of the modern air conditioning equipment, often without any extensive rewiring.



The Boost and Buck transformer is essentially a 4 winding insulated type transformer with tap connections to permit interconnection of primary and secondary windings to boost or reduce voltage to meet the needs of the power requirements.

For catalog giving detailed methods of application write for Bulletin BB199.

ACME ELECTRIC CORPORATION
824 WATER STREET CUBA, N. Y.

Acme  **Electric**
TRANSFORMERS

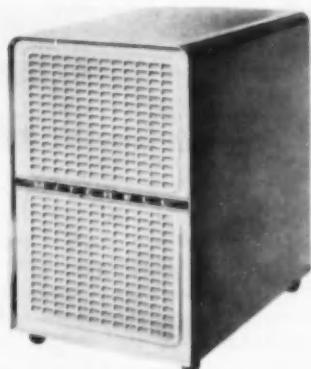
Circle No. 94 on Reader Service Card

Dehumidifier

Product: "Economy" dehumidifier.

Manufacturer: Mitchell Mfg. Co., Chicago, Ill.

Features: Extra capacity air drier can remove from 2 to 3 gallons of water daily. Unit has hermetically



sealed compressor. Water disposal can be accomplished with non-rusting, easy to empty container; hose connection for drain disposal; or unit may be placed over drain and collecting pan will deposit water directly. Of 20-gauge furniture steel mounted on 14-gauge, one-piece, die-formed base, unit is mounted on casters and equipped with handles. Product is $20\frac{5}{8}$ " high (including casters), $12\frac{1}{2}$ " wide, and $19\frac{1}{8}$ " long, and weighs 65 lbs. De-

**BUY FROM YOUR
REFRIGERATION WHOLESALER**

humidifier will remove approximately 17 to 25 pints of water daily from closed area containing 10,000 cu.ft. of space. Powered by 1/6 hp compressor motor, it operates on 115 volt, 60 cycle, one-phase alternating current.

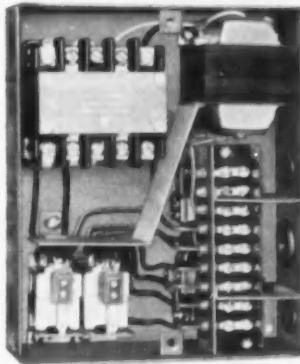
Circle No. 146 on Reader Service Card

Master Control Panel

Product: All-in-one master control panel (RS-108).

Manufacturer: General Controls Co., Skokie, Ill.

Features: Unit provides automatic centralized control of air con-

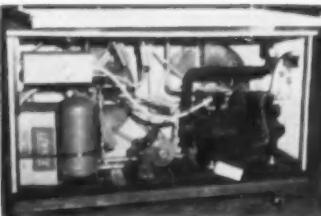


ditioning (central heating/cooling) systems. All components are contained in unit and are prewired to accessible terminal blocks. Low voltage terminals are isolated from high voltage terminals. Standard models are available in various contractor ratings, with and without integral dual pressure control—manual, automatic or remote electrical reset after trip-out, operating relays and motor starting relays for use on refrigeration units or on combination heating and cooling equipment. Units available for pilot duty to 5 and 10 hp in single and three-phase respectively.

Circle No. 147 on Reader Service Card

Compressor-Condenser

Product: Air-cooled compressor-condenser units for remote air conditioning.



Manufacturer: Lennox Industries, Inc., Marshalltown, Iowa.

Features: Cabinet housing com-

MAKE YOUR RESERVATIONS TODAY FOR THE MOST PROFITABLE SHOW ON EARTH

with

SHANA-Air

Water-Cooled and Air-Cooled (waterless)

AIR CONDITIONING

Featuring these star attractions:

- futura designing — For any home in any state!
- precision engineering (in compliance with U.L. standards)
- ultra performance (guaranteed at A.S.R.E. and A.R.I. standards)
- Simplified "A-B-C" installation and servicing
- Shana-Air selling program



AIR-COOLED SAR and SAAC Series

Available in 2, 3
and 5 ton capacities

WATER-COOLED SW Series

Available in 2-3-4-6
ton capacities



PLUS these additional attractions:

- Shana "Duo" Units! • Combination Units!
- Commercial Units! • Winter Air Conditioners!

**WRITE,
WIRE
OR CALL
TODAY!**



Shana Manufacturing, Inc. CR & AC
188 West Randolph Street Chicago 1, Illinois
Dearborn 2-7030

Please send me additional information about SHANA-AIR air conditioning.

Exclusive franchises still available. Cost of units.
 Description of all air conditioning units manufactured by Shana Manufacturing, Inc.

Name _____

Name of Firm _____

Address _____

City _____

Zone _____ State _____

Phone Number _____

Dealer

Distributor

Manufacturers' Representative

Others—Please Specify _____

Circle No. 95 on Reader Service Card

pressor-condenser units with their electrical components installed outside of building. From here refrigerant is pumped to evaporator unit, mounted on or near furnace. "Power Prop" cuts blower-operating costs up to 50% in 7½-ton model, manufacturer claims, and can discharge full air volume even into a headwind. Exhaust side of cabinet is fitted with full panel of rain-proof louvers.

Circle No. 148 on Reader Service Card

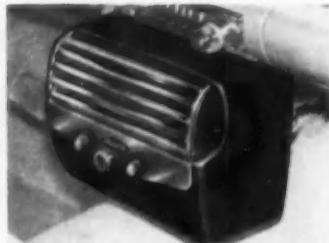
Automotive Conditioner

Product: Mark IV dash model

refrigerated automotive air conditioner.

Manufacturer: John E. Mitchell Co., Dallas, Tex.

Features: Cooling coils of un-



der-dash model are housed in glass fiber case with louvers that permit directing of air to any part of car. Unit fits most late model cars including station wagons and convertibles. Product is available in 6 or 12 volt versions. Despite compact design, unit is claimed to offer cooling and air moving capacity closely approaching that of the larger trunk model.

Circle No. 149 on Reader Service Card



Pictured here: An actual user of Ultra Solvex

High Head Pressure? Poor Heat Transfer?

Ultra Solvex Cleaner, used in cooling towers, shell and tube condensers, and "evaps," quickly and safely removes the usual causes of high head pressure and poor heat transfer . . . while the equipment is in operation. With Ultra Solvex, deposits of scale, algae, grease, slime, and dirt are disintegrated to harmless sludge, easy to drain from the system, and head pressure usually returns to normal in fifteen to forty-five minutes. Ultra Solvex is safe to use, as well. There's no danger to operator or equipment. Actually, Ultra Solvex aids in *preserving* metals. Check your equipment now . . . if yours is a *tough* cleaning job, get Ultra Solvex—the rapid, versatile, *safe* cleaner.

Solvex MAINTENANCE FORMULA stops corrosion and retards scale formation and algae growth in newly-installed or just-cleaned cooling towers and evaporative condensers. Available in tablet or granular (bulk) form. Get all Solvex products, and "CC COATING"—the specially prepared protective coating for metals, wood, concrete and masonry—at your wholesaler's, or write:

CHEMICAL SOLVENT CO.

3005 N. 16th Street

P. O. Box 487

Birmingham, Ala.

USE
**ULTRA
SOLVEX
CLEANER**



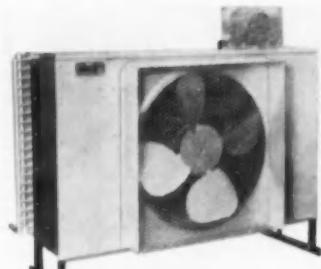
Circle No. 96 on Reader Service Card

120

Blower Condenser

Product: "BC" blower condensers.

Manufacturer: Bush Mfg. Co., West Hartford, Conn.



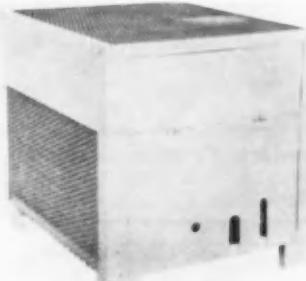
Features: Available in capacities up to 20 tons, units have steel cases with rust-resistant finish. Products are available arranged with either blower fan for indoor installations or propeller fans. Low noise level in operation. Easy to install.

Circle No. 150 on Reader Service Card

Condensing Units

Product: Straight air-cooled condensing units in 2, 3, and 5 ton sizes.

Manufacturer: Coleman Co., Inc., Wichita, Kan.



Features: Models operate at dry-bulb temperature of air. Units all have hermetically sealed compressors. Coils are copper with aluminum fins. Hinged door affords easy access to controls. Models are designed for use with direct expansion plenum coils and vertical coolers. Cabinets are waterproofed, undercoated, and finished in neutral

New compactness in air-cooled AIR CONDITIONER design!



Smallest air-cooled, self-contained (not remote) 5-ton central type unit made.

5 natural wood-grain finishes available on all free-standing models.

Completely automatic, thermostat controlled, air-cooled condenser.

MODEL RO-525A
(with air distribution head)

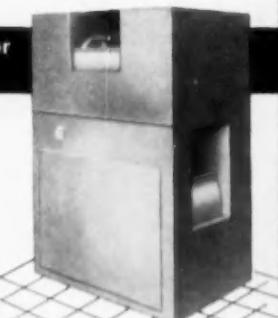


MODEL NO.	NOMINAL CAPACITY	TOTAL COOL. B.T.U.	COOLING C.F.M.	OUTSIDE DIM.
FL-2	2 Ton	24,000	900 @ 3 S.P.	30Wx21Dx43H
RO-26	2 Ton	24,000	1000 @ 3 S.P.	30Wx21Dx34H
RO-31	3 Ton	36,000	1200 @ 2 S.P.	30Wx23Dx38H
RO-31 H.P.	3 Ton	37,700	1400 @ 3 S.P.	30Wx25Dx40H
RO-525 A	5 Ton	65,500	1800-2400 @ 3 S.P.	40Wx26Dx57H

Thermostat has 3 positions: Continuous - Automatic, Fan & Compressor - OFF.

Complete air conditioning for entire home—or equivalent commercial or office area—at the lowest cost in smallest space! GENERAL AIR CONDITIONERS deliver 2, 3 or 5 tons of cooling. All models operate on standard outlet (220 V, single and 3 phase except 2-ton—single phase only).

Attic, roof, outside, or free-standing units



NATIONWIDE SALES AND SERVICE

Offices and warehouses:

LOS ANGELES • ATLANTA
BOSTON • CHICAGO
CLEVELAND • HOUSTON
KANSAS CITY • MIAMI
NASHVILLE • NEW YORK
PHILADELPHIA
SAN FRANCISCO • SEATTLE
ST. LOUIS • TAMPA

WRITE today for details. Franchise dealerships available.

MODEL RO-525A
(without air distribution head)

Main Office
GENERAL AIR CONDITIONING CORP.

Dept. R-22 • 4542 E. Dunham St.
Los Angeles 23, California

FIVE YEAR GUARANTEE—easy payment plan

The **QUALITY** is high...
but not the price

in the

MASTER-BILT

3-5-7½-10 TON COOLING TOWERS

for Residential and Commercial Air Conditioning Systems

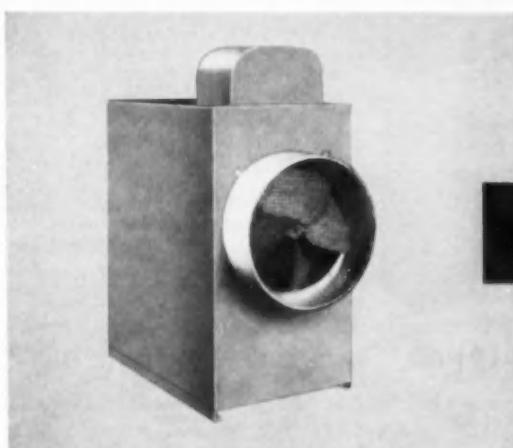
GALVANIZED STEEL resists corrosive atmospheres—lasts longer.

REMOVABLE REDWOOD DECKING provides 25% more evaporative surface than other towers of same capacity.

QUIET FAN, 44° PITCH . . . propeller-type, V-belt driven, with pivoted motor mounting for easy adjustment of belt tension.

EXTERIOR LUBRICATION FITTINGS

INDOOR-OUTDOOR INSTALLATION



For Complete Information
Mail Coupon TODAY



MASTER-BILT

REFRIGERATION MFG. CO.

920 Palm St., Dept. C. • St. Louis 7, Mo.

Master-Bilt Refrigeration Mfg. Co.
920 Palm St., Dept. C, St. Louis 7, Mo.

Please send me complete information, including literature, on your low-cost cooling tower.

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

DUC-PAC

for MODERN Perimeter Heating



SIMPLIFIED
STANDARD-SYSTEM
WITH 5" x 3 1/4"
BRANCHES

Duc-Pac, first to offer flat duct and fittings for modern perimeter installations! Set the pace in your area . . . provide your customers with this new, modern design for perimeter heating or cooling — on both new and home improvement installations.

Duc-Pac unassembled fittings feature "press-together" assembly that requires only seconds. Patented Inner-Lock eliminates unsightly "hammered-over" edges.



NEW INSTALLATIONS

Compact, neat-appearing Duc-Pac installations complete the truly "modern" appearance of new homes. 5" x 3 1/4" duct permits easy between-the-joints installation . . . flat design conforms with architecture of the home.



HOME IMPROVEMENT

Duc-Pac duct and fittings are "naturals" for "Operation Home Improvement". Ease of installation, space-saving design, trim appearance pre-sell your prospects, create satisfied customers. Let Duc-Pac help you make "56 the Year to Fix".

Request free descriptive bulletin.

DUC-PAC, Inc.

EAST LONGMEADOW,
MASSACHUSETTS

Circle No. 99 on Reader Service Card
122

tone base paint. Smallest of 3 models is 24 x 26 1/2 x 23 3/4". Units of 3 and 5 hp are available for single and three-phase current.

Circle No. 151 on Reader Service Card

being impervious to acids, liquids, gases, and chemicals. Electrostatic charge is permanent. Plain water will clean air filter. Mild detergent will remove grease.

Circle No. 152 on Reader Service Card

Permanent Air Filter

Product: "Electronaire" lifetime electro-static air filter.

Manufacturer: Hadley Products Co., Inc., Marietta, Ohio.

Features: Frames are of non-rusting .032 aluminum. Grilles of .025 expanded aluminum are in-



stalled to prevent loosening. Interior construction is of spring-tension arrangement. Thermo-plastic material in filter pack provides high electrostatic attraction which filters out and holds dust, dirt, and pollens. Pack will not rot or deteriorate.

Shaded Pole Motor

Product: "Super" shaded pole motor for air conditioning and air moving applications.

Manufacturer: Lamb Electric Co., Kent, Ohio.

Features: Motor is provided with aluminum rotor cage for maximum conductivity. Has die-cast, corrosion resistant end frames, widely spaced bearings, and ample oil reservoir. Shaft is precision ground to controlled surface finish. "Formvar" insulated wire windings are provided



for high strength and insulation resistance. Motor is available in sizes from 1/35 to 1/4 hp and has moisture and abrasion resistant finish.

Circle No. 153 on Reader Service Card

Stop noise from vibration



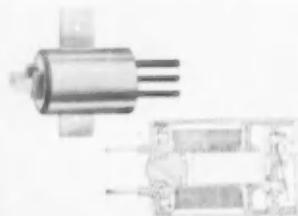
Just cut what you need for the weight of the air conditioner, and install under the unit. One square inch for each fifty pounds of weight does it. ISOMODE PADS absorb vibration, cut down noise on any type of floor. Made of DuPont neoprene, they resist oil, last for years. No cementing needed . . . units stay put. ISOMODE PADS are most economical when bought in standard packages of ten 18" x 18" sheets. Write for prices and Information Bulletin No. 415.

® Trade Mark

Electromagnetic Control

Product: "Reloid" switching device.

Manufacturer: Guardian Electric Mfg. Co., Chicago, Ill.



Features: Electromagnetically controlled, device is actuated by plunger that combines functions of relay and solenoid. Unit is enclosed in metal case with molded bakelite at contact end to protect against moisture, dust, and impact. Three contact leads are equipped with AMP or Douglas type terminals. Coil has two AMP terminals. Product available for any voltage from 6

MB manufacturing company

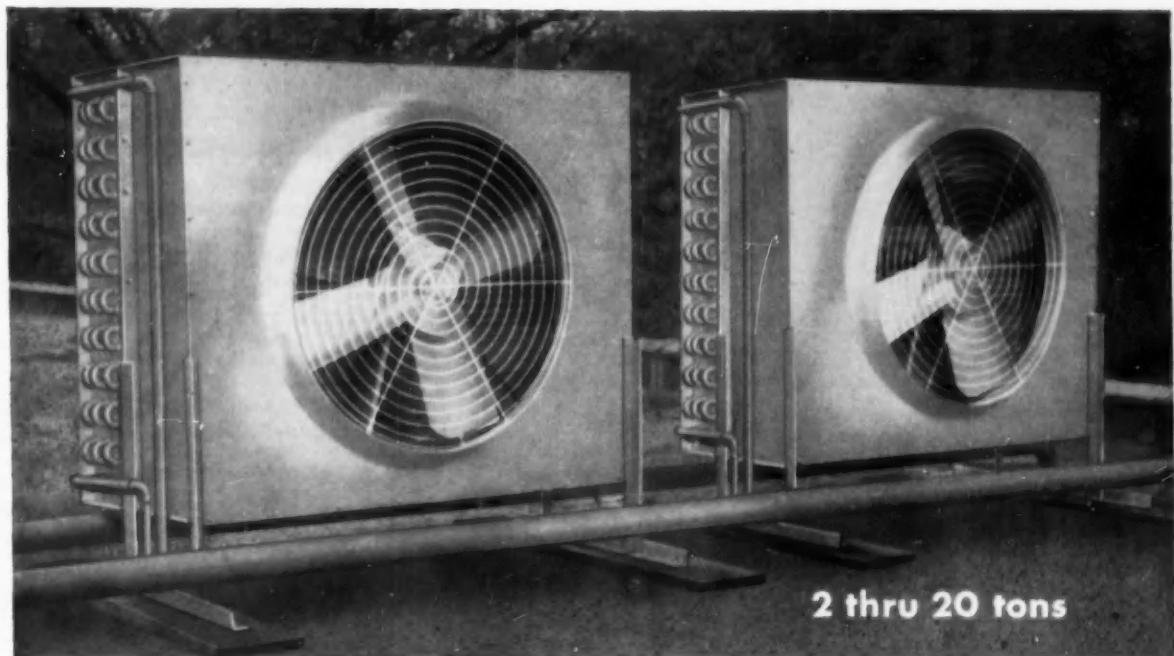
A DIVISION OF TEXTRON AMERICAN, INC.
1060 State Street, New Haven 11, Conn.

Circle No. 100 on Reader Service Card

APRIL, 1956 • COMMERCIAL REFRIGERATION

So Halstead & Mitchell Engineers said:

"LET'S GIVE THIS INDUSTRY A BETTER AIR-COOLED CONDENSER"



Now we proudly call to your attention the Halstead & Mitchell Air-Cooled Condenser for waterless air conditioning and refrigeration. This is today's *better* remote Air-Cooled Condenser.

It is engineered to a new principle called "Co-ordinated Design," and this is engineering pioneering which has coordinated capacity, performance, structural design and appearance to give:

1. Extra-Safe Capacity Ratings — made possible by a unique "dimpled" fin giving 15% added heat transfer, as well as a core designed for higher air volumes at lower fan speed.

2. Extra Years of Working Life — insured by exclusive, proven Halstead & Mitchell protection against corrosion; lifetime ball bearings; and a tubing assembly pattern which is self-reinforcing and thus deadens vibration before it starts.

3. Extra-Quiet Operation — which is the direct result of deep-pitch fan blades driven at slow speeds.

4. Extra-Easy Multi-Circuiting — developed for Halstead & Mitchell remote Air-Cooled Condensers by engineers

who know what simpler manifolding and selection of circuits can mean when several air conditioning and refrigeration machines must work off a single coil.

Even more important, you know these Air-Cooled Condensers bring you—with their Halstead & Mitchell nameplate—an assurance of the highest quality in the industry. Whether you are jobber, contractor, architect or manufacturer (and we'll be pleased to give quantity quotations), order Halstead & Mitchell "Co-ordinated Design" for the *better* Air-Cooled Condenser.

WRITE FOR BULLETIN AC-100

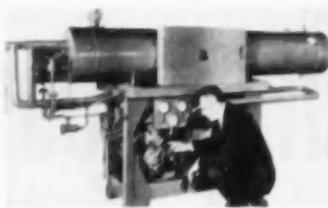
Halstead & Mitchell

BESSEMER BUILDING, PITTSBURGH 22, PA.

Manufacturer of THE INDUSTRY'S WIDEST SELECTION OF COOLING TOWERS

World's Largest Manufacturer of WATER-COOLED, CLEANABLE CONDENSERS

to 115 in either a.c. or d.c. Contacts are rated up to 8 amps at 115 volts, non-inductive. Standard contact combination is single pole, double break. Circle No. 154 on Reader Service Card



and two mounting variations designed to fit floor space or head room are incorporated in "R" series.

Circle No. 155 on Reader Service Card

Liquid Chillers

Product: New line of "Flow-Therm" packaged liquid chillers.

Manufacturer: Acme Industries, Inc., Jackson, Mich.

Features: Line consists of "C" series, complete with compressor, capacities 20 through 175 tons, and

"R" series for remote compressor mounting, capacities 15 through 300 tons. Smaller and lighter chiller in "C" line offers 25% more cooling capacity per cu. ft. of chiller size. Single or dual circuits are available

Simpson TEST EQUIPMENT

speeds up servicing of

REFRIGERATION
AIR CONDITIONING
HEATING EQUIPMENT
APPLIANCES

CHECKS 3 TEMPERATURES AT ONE TIME

THERM-O-METER, Model 388-3L (-50° to +1000° F)

Takes up to three, 7/16" thermocouple leads, general purpose or surface type. Self shielded. With one general purpose lead, battery, and **\$64.50**
operator's manual.....
Model 388 for one lead only.....

\$59.50



MODEL 388-3L

TEMPERATURE METER, Model 385-3L (-50° to +70° F)

Developed for refrigeration equipment. Takes up to three, 15", general purpose Thermistor tipped leads. With one lead and manual....
Model 385 for one lead only.....

\$30.00



MODEL
385-3L

PRETESTS CURRENT CAPACITY OF ELECTRICAL LINES

LINE-O-METER, Model 397

Tells whether existing house wiring is adequate for motor starting currents from 13 to 50 amperes. (Single phase, 117 V, 60 cycles)....

\$29.95

DIAGNOSES MOST ELECTRICAL TROUBLES

AC VOLT-AMP-WATTMETER, Model 390

Checks line voltage, current drain, and power consumption. Four wattage ranges cover practically any appliance. With break-in plug, leads, and manual.....

\$39.50



CHECKS VOLTAGE AND POWER SIMULTANEOUSLY

AC-DC VOLT-WATTMETERS, Models 391 and 392

For appliance motor testing. **\$30.00**

Model 391, 3000 watts.....

Model 392, 5000 watts.....

\$35.00

Write for New Refrigeration Bulletin No. 3001

SIMPSON ELECTRIC COMPANY

WORLD'S LARGEST MANUFACTURER OF ELECTRONIC TEST EQUIPMENT
3200 West Elkins St., Chicago 44, Ill. • Phone: Elsinore 9-821
In Canada: Beach-Simpson Ltd., London, Ontario



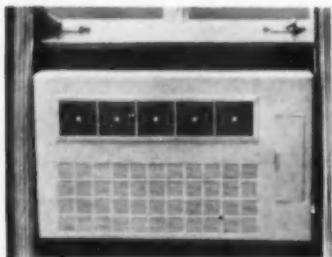
Circle No. 102 on Reader Service Card

124

Wall Air Conditioner

Product: "Deluxe" built-in wall air conditioner.

Manufacturer: Lewyt Air Conditioner Corp., Brooklyn, N. Y.



Features: One ton built-in wall air conditioner is 20" high, 17" deep, and 32 7/16" wide. Model joins companion line of 1/2 and 3/4 ton units in smaller standard sizes: 14" high, 15" deep, and 32" wide.

Circle No. 156 on Reader Service Card

Auto Air Conditioner

Product: Improved "Frigiking" car cooling unit.

Manufacturer: Frigicar Corp., Dallas, Tex.



Features: "MagneTouch" control eliminates by-pass valve and prevents freezing and defrosting problem. Permits car owner to select and maintain in-car temperature desired, even on long drives. All controls located on case, including a green-dot light that remains lighted only when the unit is refrigerating. Three-speed blower control regulates air delivery up to 400 cfm through 360-degree directional air control louvers. Units are available for either 6 or 12-volt electrical systems.

Circle No. 157 on Reader Service Card

NEW PRITCHARD REP.

The Frank K. Donnelly Co., of Seattle, has been appointed sales representative in the state of Washington by J. F. Pritchard and Co.

PAINT PEELING? . . .

Continued from page 55

paint has become loosened. Nevertheless, over the entire area the acrylic paint has lasted twice as long to date as did the other paint under the same conditions of application and usage.

The improved adhesion is largely attributable to the properties of the acrylic film, which has good strength and adhesion immediately on application. Also, acrylic films "breathe". This means the moisture under the paint can pass through it instead of being trapped under the film to form water pockets which blister the film and eventually cause peeling.

Another advantage of acrylic paint, when used in food handling, dining spaces, or confined or poorly ventilated areas, is that it has a barely detectable odor which disappears completely within 30 minutes. Thus, at the Roosevelt the maintenance crew could repaint the refrigerated room without bringing in the blowers that were necessary for ventilation when the other paint was used.

YOU CAN JUDGE . . .

Continued from page 55

food service setup covered by the proposal, but also can continue to keep it functioning at peak performance after the installation has been completed.

Basically, the food service sales department at Baker-Ward is a two-man team, with Pulaski handling the major share of the sales load and Tom Thompson doing the engineering and drafting. Sometimes, however, the two men will go out together on a sales call, wherever it is felt that the "double-teaming" technique may be effective. Here again it is the emphasis on the engineering aspects of the job, as personified by Thompson, that helps turn the trick.

Still another reason for the emphasis on engineering in this type of work, Pulaski points out, is the fact that on many food service installations, particularly those in institutions, it is necessary for the dealer to work hand in hand with the architect or consulting engineer on the job. Not infrequently, in

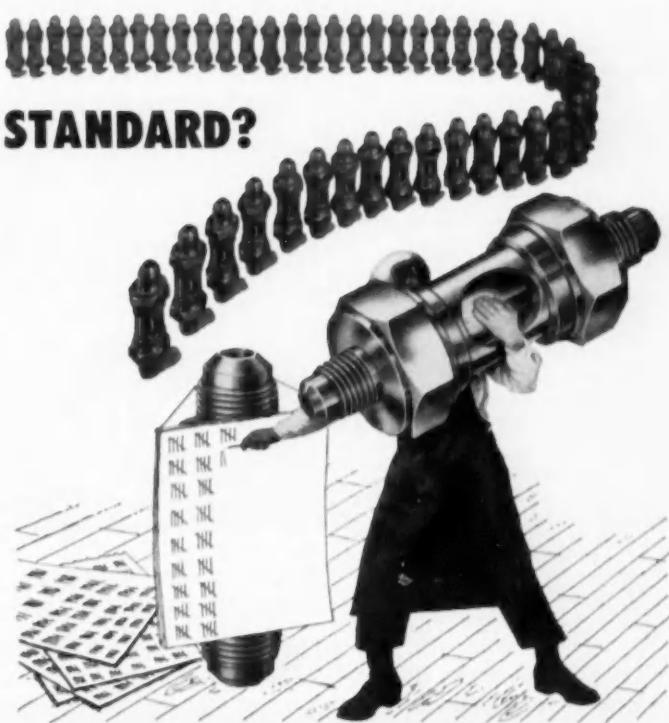
fact, it is necessary for the dealer's salesman to suggest a modification of the structural plans in order to accommodate the food service equipment specified.

In such instances it is important that the salesman have enough engineering know-how at his command so as to be able to make suggestions intelligently. At the same time, he also must be enough of a diplomat so that he can make such recommendations without conveying the implication that the archi-

tect or engineer may have made an error or oversight in his original plans.

Sets of plans for food service installations usually require more detailed accuracy than those for food store installations, because of the fact that so much of the equipment has to be specially fabricated to fit a particular space. This applies not only to items like counters and drainboards, but also on occasion to unitary equipment.

To protect the investment in



YES, ORIGINAL EQUIPMENT STANDARD REMCO E-Z-SEE LIQUID INDICATOR

Remco's E-Z-SEE Liquid Indicator is *Original Equipment Standard* to dozens of manufacturers of automotive, residential, commercial and industrial air conditioning and refrigeration equipment.

The E-Z-SEE, *guaranteed leak-proof*, is the lowest price liquid indicator on the market. Only Remco gives your choice of spring-type or low cost hermetically-sealed indicators, in both brass and lower-cost cadmium plated steel.

These double-port, easy-to-see-thru units may also be had as flow indicators with flaps which respond instantly to flow variation.

Remco E-Z-SEE's range in size from $\frac{1}{4}$ -inch through $2\frac{1}{2}$ -inch O.D., and are available with flare or sweat connectors. For any size or application, E-Z-SEE is standard for *original equipment*.

● **ATTENTION, WHOLESALERS!** Write today for Remco's O/E Standard Book for replacement parts your customers need.



Circle No. 101 on Reader Service Card

time and effort which necessarily must go into such plans, Baker-Ward has adopted a standard practice of stamping the first sheet of each set of drawings with a notice which reads: "These layout prints have been produced by and are the property of Baker-Ward, Inc. If used by anyone without the authorization of Baker-Ward, Inc., there will be a professional service charge rendered for not less than \$100."

Naturally, if the prospect becomes a customer the \$100 charge is waived, and the plans are included as part of Baker-Ward's services on the job. If, on the other hand, Baker-Ward is not successful in closing the sale, then the prospect has two alternatives: return the plans, or pay the \$100 fee and keep the plans for whatever use he may wish to make of them.

"Next to the job proposal itself," Pulaski declares, "the most effective way to convert food service prospects into customers is to take them to see actual installations of a similar type. Because so much food service equipment must be custom built, there's really not much point in a dealer attempting to maintain a floor display of anything but a few packaged specialty items. But if you can show the prospect a few of your jobs that are somewhat akin to the one he has in mind—and if these jobs

bear the obvious stamp of professional planning and workmanship—you've gone a long way toward getting his name on the dotted line.

"The dealer's job and his responsibility doesn't end with the actual sale, or even with the completion of the installation," Pulaski warns. "The best planned and best installed job won't provide the utmost in customer satisfaction unless it is properly used. So the final touch of 'professionalism' that we employ is to have one of our men go over each completed job with the owner, to make sure that he thoroughly understands the operation of each piece of equipment so that he can utilize the entire installation to best advantage.

"This thorough, conscientious, professional type of treatment, we find, not only nets us a lot of sales in the food service field but also keeps our old customers coming back for more."

SERVEL NAMES TWO

Servair Heating & Cooling Corp., Indianapolis, Ind., and W. V. Alton Sheet Metal Co., Marysville, Calif., have been appointed distributors by Servel, Inc. The firms will handle Servel's line of air conditioning products.

HOT GAS DEFROST HOLDS DOWN TEMPERATURE RISE



SOLUTION TO NEED for quick defrosting and minimum temperature rise was found by Refrigeration Machine Service of Wilkes-Barre, Pa., in this new freezer room for Phillips Sea Food Kitchens, Exeter, Pa. Here seafoods including crab cakes, fillets, etc. are prepared, boxed and quick-frozen for shipment to the company's five retail stores and other customers. Two Bush hot gas defrost unit coolers, installed as shown, maintain temperature at 0 to -8 F in the 30' x 20' x 12' room. Two similar units hold conditions at 30 F in the 30' x 60' x 12' holding room.

OWNERSHIP CHANGE IN ABCO SUPPLY CO.

In a change in the partnership interests in Abco Refrigeration Supply Co., New York City, George Moncher has purchased the partnership interest of his brother, Sam Moncher, who had been active in the business since 1949. The partnership interest of Jules A. Gottlieb, who has been with the company from its inception, remains unchanged.

MOTOR MAKERS MERGE

Ohio Electric Mfg. Co., Cleveland, has announced acquisition of Kingston-Conley, Inc., North Plainfield, N. J., manufacturer of electric motors and other rotating electrical apparatus. Patents, trademarks, tools, dies, inventory and plant manufacturing facilities were included.

Kingston-Conley will be operated by Ohio Electric as a wholly owned subsidiary. Ohio Electric makes electro magnets and control equipment, special machinery, and electric motors up to 1/3 hp. Kingston-Conley produces motors from 1/3 to 5 hp.

BALDWIN-HILL OPENS NEW RESEARCH LAB.

Opening of a new research laboratory at its main plant in Trenton, N. J., is announced by the Baldwin-Hill Co. The new laboratory will be devoted completely to research in the manufacture and use of mineral wool thermal insulating products for home and industry.

Baldwin-Hill recently expanded its manufacturing facilities at Huntington, Ind. The company also operates plants in Temple, Tex., and Kalamazoo, Mich.

NELSON CO. SOLD TO WASHER FIRM

N. O. Nelson Co. of St. Louis and its subsidiary, Joplin (Mo.) Supply Co., have been sold by Bellanca Aircraft Corp. to Automatic Washer Co. of Newton, Iowa. Bellanca acquired the Nelson company last year. Nelson is a wholesaler of refrigeration, air conditioning and plumbing supplies.

130,000 HOME UNITS SOLD IN '55, ARI SAYS

At least 130,000 U. S. homes were completely air-conditioned with central cooling units during 1955, an increase of 68.5% over the 77,150 residences air-conditioned the previous year, according to the Air-Conditioning and Refrigeration Institute.

The central air-conditioning plants installed in homes were in addition to the 1,300,000 room air-conditioner units sold at the consumer level in 1955, an increase of 30% over the previous year.

Geo. S. Jones, Jr., managing director of the Institute, said that the 130,000 figure for central cooling units is probably conservative, but that a more accurate figure would be difficult to get. The total given is based on manufacturers' shipment figures.

BETZ CORP. BOUGHT BY BOHN ALUMINUM

Bohn Aluminum & Brass Corp. has announced that it has acquired the assets of the Betz Corp. of Hammond, Ind. Betz manufactures heat transfer equipment for commercial refrigeration and air conditioning.

Bohn's president S. D. Den Uyl said the move was part of a company plan of expansion and diversification. Betz Corp.'s products closely parallel Bohn's product lines for the air conditioning and refrigeration industry. The new facility will be operated as a division of Bohn.

SERVICE MGRS. CLUB MEETS IN CHICAGO

More than 25 service managers of equipment and component parts manufacturers gathered in the Sherman Hotel, Chicago, Feb. 14 for a luncheon and afternoon meeting.

The Manufacturers Service Managers' Club of Refrigeration Service Engineers Society heard and saw demonstrated "Field Service Diagnosis by Simple Chemistry." Frank J. Versagi, senior analytical chemist of Mueller Brass Co., Port Huron, Mich., showed how moisture and foreign particles trapped

at screens tied-in with an analysis of desiccant in the drier can anticipate possible trouble or determine cause of failure.

Cecil Merryman, parts and service department manager of Bastian-Blessing Co., Chicago, discussed operating procedures employed in the service department of his firm.

C. Stanley Kessler, service manager, U. S. Air Conditioning Co., Minneapolis, is club chairman. In addition to him, the 80-member organization's executive committee

is composed of Bryant L. Britt, Wagner Electric Corp., St. Louis; Ray Thompson, O. A. Sutton Corp., Wichita; William Tyson, Carrier Corp., Syracuse; J. C. Kellner, Jr., Servel, Inc., Evansville, Ind.; and John H. Spence, Hussmann Refrigeration Co., St. Louis. Next meeting of the group is planned for early June in Chicago.

BUY FROM YOUR
REFRIGERATION WHOLESALER

Marsh Presents...

*The one and only
water valve
for both
F-12 and F-22*



Yes, you can adjust this new water regulating valve from 60 to 270 pounds by simply twisting that knurled cup at the bottom . . . so now you have one valve that will function equally well on either Freon 12 or Freon 22.

It's new and better in every way: Small and compact, but with plenty of capacity, smooth modulation, positive operation, excellent flow characteristics. Valve may be manually flushed after installation to remove dirt and grit from line.

Quality construction throughout: Monel seat beads minimize wire drawing and prolong life. Direct acting bellows is leak proof.

Write for bulletin pointing out other brand new features.

MARSH REFRIGERATION EQUIPMENT CO.

Sales affiliate of Jas. P. Marsh Corp.

DEPT. P SKOKIE, ILLINOIS

Marsh Instrument & Valve Co. (Can.) Ltd.
8407 103rd St., Edmonton, Alberta, Can.

*Buy from
your wholesaler*

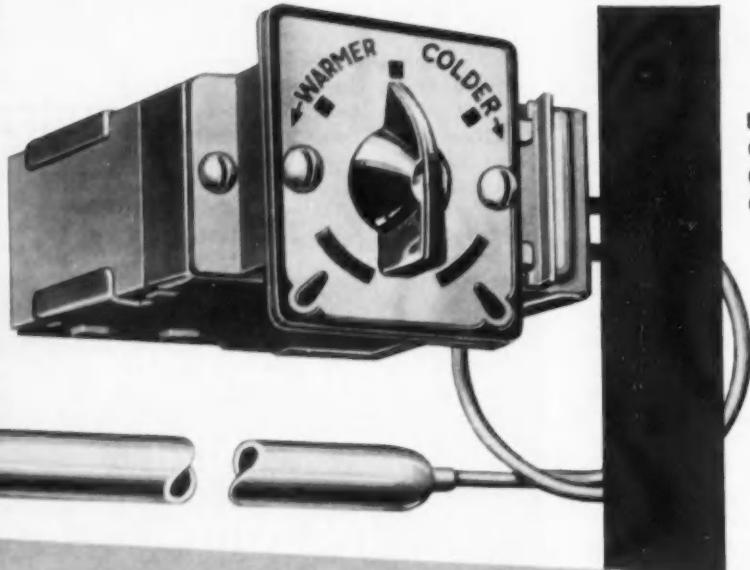
MARSH *Refrigeration Equipment*

WATER REGULATING VALVES • SOLENOID VALVES • GAUGES • HEATING SPECIALTIES

Circle No. 105 on Reader Service Card

QUICK CALLS... with never a call-back

Ranco's close-differential air conditioning control installs quickly, serves without service



Unit Air
Conditioner
Control
C12-5010

This narrow (3") differential thermostat for unit air conditioners speeds installation time and gives you a neat profit on one of your thorniest service jobs.

You can use it as a single-pole, single throw switch (for cooling only) employing two terminals . . . or as a single-pole, double throw switch (for heating and cooling) employing three terminals. Wired with a manual selector switch to a reversing valve or heater, one pair of contacts cycles the compressor for cooling; the other pair cycles the compressor and reversing valve or heater for heating.

Ranco makes thousands of other controls, too—each designed to help you boost profits by cutting job time and eliminating call-backs. For the right control every time . . . see your Ranco wholesaler.

Ranco Replacement Reference No. 1544

Which control to use? This Reference describes nearly 5,000 Ranco Controls by application. Get your copy from your Ranco wholesaler today (not available from factory).



Ranco Inc.

COLUMBUS 1, OHIO

World's Largest Manufacturer of Refrigeration Controls

Circle No. 104 on Reader Service Card

HERE'S HOW!

Proper Service Lengthens Electric Motor Life

Quality electric motors given the proper care generally will operate without trouble for indefinitely long periods of time. To insure the best possible service from fractional horsepower motors, the following helpful maintenance hints have been offered in the Bodine Motorgram issued by Bodine Electric Co.

Inspect Motors Regularly: Small motors usually operate with so little trouble that they are apt to be neglected. They should be thoroughly inspected twice yearly to detect wear and to remove any condition which might lead to further wear. Special care must be taken to inspect motor bearings, cutouts, and other wearing parts. Be sure dirt and dust are not interfering with ventilation or clogging moving parts.

Check Load Condition: It is a good plan to check the driven load regularly. Sometimes additional friction develops gradually within the machine and thus imposes an overload on the motor, so watch motor temperature. Protect your motors with properly rated fuses or overload cutouts.

Replace Worn Brushes: Brushes should be inspected at regular intervals so that replacements can be made if necessary. Whenever a brush is removed for inspection, be sure it is replaced in the same axial position; that is, it must not be turned around in the brush holder when putting it back in the motor. If the contact surface which has been "worn in" to fit the commutator, is not replaced in the same position, excessive sparking and loss of power will result.

Brushes naturally wear down, and should be replaced before they

are less than $\frac{1}{4}$ " in length. The commutator also should be inspected when brushes are removed.

Keep Commutators Clean: Do not allow a commutator to become covered with dust or oil. It should be wiped occasionally with a clean, dry cloth or one moistened with carbon tetrachloride. If necessary to use sandpaper, use No. 0000 or finer.

Extra Care in Lubrication: A motor running three times as much as usual will need three times as much attention to lubrication. Motors should be lubri-

cated according to manufacturer's recommendation. Provide enough oil, but don't overdo it.

Check Internal Switches:

While switches usually give little trouble, regular attention will make them last even longer. Use fine sandpaper to clean contacts. Be sure sliding member on shaft moves freely. Check for loose screws.

Watch Alignment: A motor shaft which is out of line with its load will cause the shaft and bearing to wear rapidly, sometimes damaging the driven machine.

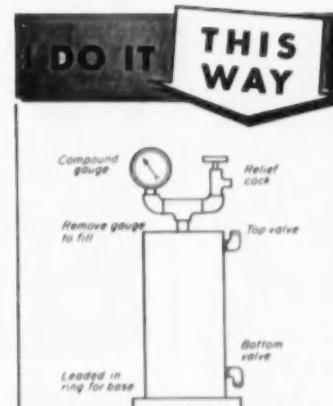
Excessive Temperatures Cause Oil Breakdown

Even in bone dry refrigeration systems, oil breakdown sometimes occurs, and Ansul Chemical Co. has carried on considerable research in an effort to determine why. Results of this research have been reported in Ansul's *News Notes*, and a summary of this information is reported here.

The dry systems in which oil breakdowns have occurred invariably have been found to be running at tremendous head temperatures. In most cases they have been either low temperature systems operating at very low suction pressures on the low side, or speeded up undersize compressors also operating at very low suction pressures.

Often the steel in the valve plate has turned blue from heat. Blued steel means temperatures of approximately 1000 F., temperatures at which an organic material such as oil can not usually survive, whether or not moisture is present. Such temperatures result from intolerable compression ratios.

The compression ratio is the absolute head pressure divided by



WHENEVER we find it necessary to add oil to any of our refrigeration equipment here at the Traverse City State Hospital, which includes domestic, commercial and industrial types of units, we use an oil charger which I converted from an old receiver simply by adding two $\frac{1}{4}$ " flare connections, a compound gauge, and a small bleed-off valve.

After filling this charger with the proper amount of oil, we stand the tank on end, connecting the top valve to the high side and the bottom valve to the suction side. In this way the unit can be charged in a couple of seconds, with no guessing and no mess.

*Lorne H. Slipperley
Traverse City, Mich.*

BROOK MOTORS
FOR EVERY REQUIREMENT
1 TO 500 H.P.

Write for this Helpful Bulletin

Describes and catalogs the more popular sizes of Brook a.c. motors—World's Most Respected Motor. Surpass NEMA specifications, yet cost less than ordinary motors. Single phase and polyphase.



Available in Open Drip Proof or Splash Proof, Totally Enclosed Fan Cooled, Totally Enclosed Non-Ventilated, NEMA "C" Flange, Extended Shaft Pump Motors and other types—all built better to deliver power at minimum cost.

FAST DELIVERY OF ALL POPULAR MODELS

Brook Motors are available from warehouses at: Chicago; Miami, Fla.; Jersey City, N. J.; Houston; Dallas; Los Angeles; San Francisco; Seattle; Salt Lake City; Savannah, Ga.; and other major distributing points.

Consult Your Brook Motor field engineer.



BROOK MOTOR CORPORATION
3553-55 W. Peterson Ave., Chicago 45, Ill.

absolute suction pressure. At no time is it considered advisable to exceed a 10:1 compression ratio. When the ratio exceeds this point, either multistaging should be employed or, depending on the application, a larger compressor installed.

Service and installation engineers should be on the watch for dangerously high compression ratios. It is the opinion of Ansul research experts that no amount of drying or acid removal can save the oil at temperatures of 1000 F and higher. The problem in such instances is one of misapplication, and should be corrected from that point of view.

**YORK-SHIPLEY HAS
OFFICE IN CANADA**

York-Shipley, Inc. has established a sales office, to be known as York-Shipley of Canada, at 215 Harbord Road, Cooksville, Ont. Harold W. Blakley, formerly assistant sales manager of Babcock-Wilcox and Goldie-McCulloch, Ltd., an Ontario concern, will be Canadian sales manager.

Your Key
to Better
Refrigeration
Sales



COLDIN

WRITE NOW
...for the NEW 1956 Coldin
Catalogue showing the
current and complete Com-
mercial Refrigeration line.

Coldin

COLDIN CABINET CO., Inc. 2800 WEBSTER AVENUE • NEW YORK 58, N. Y.



You've Never
Seen Anything
Like It Before!

**AN ACID SCALE REMOVER SAFE
ENOUGH TO USE ON GALVANIZE!**

No scale remover ever made can give you the concentrated cleaning power of VAPCO . . . plus this added safety. You can prove it to yourself. Ask your wholesaler for a demonstration today, or write

GARMAN COMPANY, INC.

St. Louis 23, Mo.

NO WONDER

1,000,000 AMPROBES HAVE BEEN SOLD!

"We found the Amprobe snap-around volt ammeter to be the best type of equipment available to quickly analyze electrical troubles. Amprobe enables our servicemen to do a better job more efficiently than any other equipment we have used," says S. J. Janczarek, Service Engineer for Refrigeration Service Inc., the Frigidaire Sales & Service representative in Detroit, Michigan.

Servicemen everywhere like the way Amprobe eliminates guesswork — speeds up servicing — saves time and money on the job.

No other volt-ammeter boasts such universal acceptance. There's an Amprobe for every job, every budget: from 10 amp and 250 volts to 1200 amp and 600 volts AC; from \$19.85 to \$67.50. See them at your jobber's today.



Amprobe Model 300



Amprobe Jr.

AMPROBE
world's most popular snap-around volt amp tester

MAIL COUPON FOR FREE SERVICE BULLETINS

Pyramid Instrument Corp.
Dept. A-46, Lynbrook, New York
Please send me bulletins checked:

Know your
UL wiring
standards
for room
units

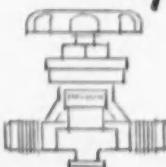
Troub-
leshooting
electric
motors

14 ways a volt-
ammeter can
boost your
service
profits

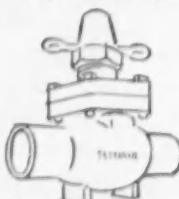
NAME.....
ADDRESS.....
COMPANY.....
CITY..... ZONE..... STATE.....



calling your
jobber
today?



if it's Line or



Globe valves
take it easy on
yourself... ask for
these "Trouble free"
valves by



Superior
valve & fittings co.
pittsburgh 26, pa.

Circle No. 111 on Reader Service Card
132

ON THE ROOF . . .
Continued from page 103

driven Curtis compressor, a 5-hp Curtis air handling unit, and a matching Kramer air cooled condenser in one compact "package" on the drive-in roof, directly above the service area which was to be cooled.

All of this equipment was mounted on a base of I-beams especially welded to fit the various components of the system and supported by the structural steel framework of the building itself. This base then was completely covered with aluminum paint.

Supply ducts were installed leading straight down through the roof from the air handling unit and running it in the ceiling joist area to four Anemostat ceiling type air diffusers strategically located in



ONLY VISIBLE SIGN of the air conditioning system installed in this roadside drive-in is the supply and return grilles in the ceiling leading to the roof-mounted equipment directly above.

the dining area. Each of these units has a rated capacity of 450 cfm. Two return air grilles were mounted in the ceiling directly beneath the return end of the air handling unit.

This method of installation made it possible for the drive-in to be air conditioned without having any exposed ductwork or without having to resort to a drop ceiling to conceal the runs of ducts.

To protect the exposed air conditioning equipment from both sun load and weather, Hill fabricated a sheet metal housing for the compressor and also for the fan motor on the air handling unit. The air handling unit itself, of course, already was housed in a cabinet. Then the entire assembly — excluding, of course, the air

cooled condenser — was completely encased in a 2" covering of Foamglas insulation, sealed with two layers of black mastic, and finished with two coats of white Foster weatherproof insulating paint.

The insulation was scored around the standard access panels for the cooling coil and filter compartments so that these insulated panels could be readily removed whenever service was required. Only five screws need to be loosened in order to remove the insulated compressor housing from the I-beam base. Three recesses were provided in the insulation covering the front end of the air handling unit so that the fan bearing oil cups would be continually exposed in order to simplify periodic lubrication.

Installation of the system was relatively simple, as it was done at a time when the building itself was being enlarged and remodeled. In fact, Hill and two helpers completed the installation from start to finish, with the exception of insulating the equipment housing, in



Ask your
JOBBER
for the
New Rigid
Saddle
Multi-Size

"TAPALINE"
HERMETIC GAUGE PORT

Taps the line quickly
for purging or adding
gas, checking pressures.
One valve fits all 3
tube sizes — 1/4", 5/16",
and 3/8". No special tools
needed for installing.

\$175
each

**MECHANICAL
REFRIGERATION
ENTERPRISES**

5735 CAHUENGA BOULEVARD
N. HOLLYWOOD, CALIFORNIA

Circle No. 81 on Reader Service Card
APRIL, 1956 • COMMERCIAL REFRIGERATION

a single overtime working day.

How well has this system performed the job for which it was intended? Well, Hill reports that it operated all through last summer's record heat wave without a single service call, and that the owner has been completely satisfied with the conditions which it has maintained.

LEWYT ADDING TO PLANT FACILITIES

Lewyt Air Conditioner Corp. will have increased testing and production facilities as its part of a \$10 million expansion program announced recently by Lewyt top management covering all three of its corporations.

Added to the air conditioning facilities will be a calibrated calorimeter test room, a test chamber for air measurements, a sound room, research and development laboratory, new automatic paint spray equipment, and a production line capable of producing 100,000 units a year on a three-shift schedule.

save service time with

LIQUID EYE®



POSITIVE SEALING INDICATORS

"... eliminates many unnecessary trouble checks for me — one glance tells the story!"



Illustrated: 100 Series, 1/8" or 3/8" female by male flare.

- Pyrex glass, double pressure sealed at sides and ends.
- Provides instant visible check of refrigerant condition.
- Spring-loaded gaskets insure positive seal at all times.
- Unrestricted full line flow.
- Guaranteed to 500 psi.
- Precision made.

Sold by leading wholesalers everywhere. Write today for Catalog D-55 covering the complete Allin line.

 **Allin MANUFACTURING COMPANY**
1153 West Grand Ave., Chicago 22, Ill.
Almost 1,000,000 Liquid Eyes Sold to Date!

Circle No. 114 on Reader Service Card
& AIR CONDITIONING • APRIL, 1956

ELECTRONIC CONTROLS . . .

Continued from page 110

until it balances a bridge circuit controlled by the room thermostat. This is the system shown schematically in Fig. 3.

It will be seen that from the control cabinet the installation of electronically controlled devices is identical with that of other electrical controls. Valve and damper motors may be located where mechanically desirable, and the control box wherever most convenient from a supervisory standpoint, usually in the office of the manager or engineer. Shielded cable is run from control box to each controller and conventional wiring from control box to controlled devices. Terminals are provided for direct connection of wires in the control panel.

The various bridge circuits are built into the control panel and present no problems to the installer. It will be seen that they consist only of resistors and connections to terminals to which thermostat cables are joined.

Electronic controls range in size, from simple on-off heating or cooling operations with or without outside temperature compensation, to complete control of both temperature and humidity. They may be the answer to some of your control problems requiring the ultimate in precision.

OPPORTUNITIES

(Classified Advertising)

Rates: for "Positions Wanted," \$6.50 minimum, limit 25 words. For all other classifications, \$8.00 minimum for 25 words or under, each additional word 20¢. Boldface type or all capitals, \$10.00 minimum for 25 words or under, each additional word 25¢. All classified advertising payable in advance.

LINES WANTED

NEWLY FORMED Canadian manufacturer's agent in refrigeration field representing no one at present wishes to contact American company interested in volume sales in Canada. Write Box 3156, COMMERCIAL REFRIGERATION & AIR CONDITIONING.

BUY FROM YOUR
REFRIGERATION WHOLESALER

if you need valves
or driers
sight glasses
heat exchangers
or fittings
of any kind
ask your jobber
for the best
... ask for
sf

Superior
valve & fittings co.
pittsburgh 26, pa.

Circle No. 113 on Reader Service Card

INDEX TO ADVERTISERS

A

Acme Electric Corp.	118
Aerovox Corp.	4
Airtemp Div., Chrysler Corp.	49
Alco Valve Co.	1
Allin Mfg. Co.	133
American Blower Corp.	102
American Brass Co.	17, 58
American Gas Machine Co.	65
American Motors Corp., Kelvinator Div.	89
Anderson Chemical Co.	97
Ansul Chemical Co.	16
Armstrong Cork Co.	47
A-P Controls Corp.	Cover 3
Aurora Pump Co.	82

B

Beach-Russ Co.	77
Bell & Gossett Co.	76
Bevco Co.	94
Bonney Forge & Tool Works	88
Brook Motor Corp.	130
Brunner Mfg. Co.	2
Bush Mfg. Co.	93

C

Calgon, Inc.	115
Carbonic Dispenser, Inc.	66
Carrier Corp.	45
Century Electric Co.	18-19
Chase Brass & Copper Co.	30
Chemical Solvent Co.	120
Cold Corp. of America	37
Coldin Cabinet Co., Inc.	130
Coleman Co., Inc.	7
Commercial Credit Corp.	25
Copeland Refrigeration Corp.	Cover 2
Cornell-Dubilier Electric Corp.	75
Curtis Mfg. Co., Refrigeration Div.	31

D

Davison Chemical Co.	27
Delco Products Div., General Motors Corp.	11
Dover Mfg. Co.	99
Dow Chemical Co.	12-13
Drayer-Manson, Inc., Div. of National-U. S. Radiator Corp.	112
Duc-Pac Div., Swift Bros. Inc.	122

F

Flexible Tubing Corp.	23
Frankell Mfg. Co.	98

Frick Co.	113
Frigidaire Div., General Motors Corp.	21

G

German Co.	130
General Air Conditioning Corp.	121
General Chemical Div., Allied Chemical & Dye Corp.	9

Gibson Refrigerator Co.	117
Gloekler Refrigerator Co.	71

H

Holstead & Mitchell	123
Henry Valve Co.	78
S. A. Hirsh Mfg. Co.	71

K

Kelvinator Div., American Motors Corp.	89
King Zeero Co.	91
Kinney Mfg. Co.	41
Kramer Trenton Co.	42

L

La Crosse Cooler Co.	92
Lake Chemical Co.	92
Larkin Coils, Inc.	85
Lehigh Mfg. Co.	28
Linde Air Products Co., Unit of Union Carbide & Carbon Corp.	94*

M

M-B Mfg. Co.	122
Jos. P. Marsh Corp.	127
Master-Bilt Refrigeration Mfg. Co.	121
Mechanical Refrigeration Enterprises	132
Miracle Adhesives Corp.	82
Modine Mfg. Co.	40
J. W. Mortell Co.	15, 74
Mueller Brass Co.	38-39
Mueller Climatrol, Div. of Worthington Corp.	111
F. E. Myers & Bro. Co.	5

P

Paragon Electric Co.	86
Peerless Electric Co.	48
Penn Controls, Inc.	14, 50
Pinnacle Equipment Corp.	82
Pyramid Instrument Co.	131

R

Remco, Inc.	125
Rectorseal	94
Remco, Inc.	125
Research Products Corp.	113
Revere Copper & Brass, Inc.	83
Rotary Seal Co.	91

S

Schaefer Brush Mfg. Co.	98
C. Schmidt Co.	80
Servel, Inc.	10
Shana Mfg. Co.	119
Simpson Electric Co.	124
Sporlan Valve Co.	26
Sprague Products Co.	116
Square D Co.	29
Stewart Industries, Inc.	29
Superior Valve & Fittings Co.	132, 133

T

Tecumseh Products Co.	90
Temprite Products Corp.	79
Texas Co.	73

U

Uniflow Mfg. Co.	48, 67
Union Asbestos & Rubber Co.	100
Union Carbide & Carbon Corp., Linde Air Products Co.	94
United Wire & Supply Co.	87

V

Virginia Smelting Co.	6, 69
-----------------------	-------

W

Wagner Electric Co.	44, 70
Wagner Tool & Supply Co.	95
Westinghouse Electric Corp.	33-36
A. H. Witt Co.	46
Wolverine Tube Div., Calumet & Hecla	81
Wrap-On Co.	113

CONCLUSIVE EVIDENCE

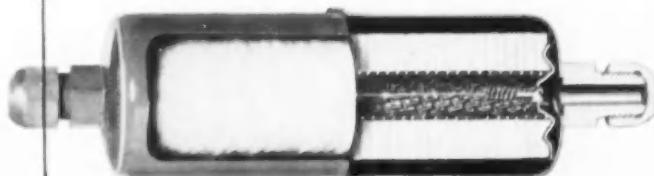


MODEL 408 Trap-it...

traps impurities as small as 5 microns — definitely improves valve operation.

Best protection any expansion or solenoid valve ever had!

- Many times the filtering and absorbing area of conventional strainer. Tightly-wound cotton fibre intermeshes trap *all* dirt!
- Contains nothing which can dissolve, damage or enter the refrigeration system.
- Available in 3 sizes . . . $1/4"$, $3/8"$, $1/2"$ and $5/8"$ SAE connections.



IF YOU MAKE, INSTALL OR SERVICE REFRIGERATION SYSTEMS — you need Trap-Dri and Trap-It. Order from your jobber, or write:

Circle No. 2 on Reader Service Card



TRAP-DRI keeps valves 100% clean!



MODEL 410 Trap-Dri...

assures 100% acid removal,
plus complete moisture adsorption

The difference Trap-Dri makes on valve parts is dramatically apparent above! Put Trap-Dri's five-point protection against acids, moisture and dirt to work for you.

1. 100% acid removal — Stops corrosive action on valve parts.
2. New PA 400 silica gel has 98% greater moisture adsorption capacity than conventional silica gels.
3. Exclusive "Depth filtration" — more filtering area than any other drier.
4. Pressure drop less than 2 lbs. at rated Trap-Dri capacity!
5. Hermetically factory-sealed. Plastic caps keep out dust and moisture.

Trap-Dri is available in 20 models — flare and solder connections — for systems from $1/3$ to 12 tons.



For Air • Liquids • Gases • Refrigerants

DEPENDABLE Controls

A-P CONTROLS DIVISION
CONTROLS CORPORATION of BEECHCROFT

2486 N. 32nd Street, MILWAUKEE, Wisconsin
COOKSVILLE, Ontario NIJMEGEN, Holland
For Export: 13 E. 40th Street, New York, N. Y., U.S.A.

Young Miss Maass bet her life



EVEN at 6:00 A.M., it is warm in Havana. But young Miss Clara Louise Maass felt chilly. Her head ached. Worse, she knew nothing would help.

The illness starts like any other febrile attack. But soon the face is flushed. There is high fever. After two or three days, the pulse becomes feeble, the skin cold and of a lemon-yellow tint. Chances of recovery hardly approximate 50%.

In seven pain-wracked days, yellow fever killed Clara Louise. And it was her own doing:

At Las Animas Hospital, Cuba, in 1901, volunteers were needed for the famous U.S. Army yellow fever experiments.

And she, who had fearlessly nursed the worst fever cases, thought undergoing the disease herself would make her a better nurse. She asked to be bitten by an infected mosquito. "I tried to dissuade her," said the medical director. "But she insisted."

So, in what would soon be America's victorious battle against yellow fever, Clara Louise Maass bravely died as she had lived—for others.

Yet the steel of her quiet, devoted courage still gleams in the strength of today's Americans. For it is still American courage and character that make our country secure—and that actually back our nation's Savings Bonds.

That's why U.S. Savings Bonds are among the world's finest investments. That's why you're wise to buy them regularly, and hold on to them. Start today!



* * *

It's actually easy to save money—when you buy Series E Savings Bonds through the automatic Payroll Savings Plan where you work! You just sign an application at your pay office; after that your saving is done *for you*. The Bonds you receive will pay you interest at the rate of 3% per year, compounded semiannually, when held to maturity. And *after* maturity they go on earning 10 years more. Join the Plan today. Or invest in Bonds regularly where you bank.

Safe as America — U.S. Savings Bonds



The U.S. Government does not pay for this advertisement. It is donated by this publication in cooperation with the Advertising Council and the Magazine Publishers of America.